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ABSTRACT

The beginning of interest in educational research as such is traced to the 1890's and to J. M. Rice, who encouraged that departments of educational research be attached to public and private agencies and university education departments. Early research efforts were limited largely to measurement and elementary and secondary education, but a 1910 congressional appropriation began higher education study in the federal Bureau of Education. Subsequent research movements included work on specificity of data, standardization in all areas (accreditation, testing, and so on), the rise of science education, curriculum problems and development, personality factors in objective testing, personality development and learning, intelligence testing, attitude measures, philanthropic foundation involvement in education, egalitarianism, cooperative research efforts by groups of institutions, interest in university adaptation to changing demands, the social forces of industrialism, the quality of the college environment for student life, and the teacher role. The two broad areas of most current research are teaching and learning, and the nature of the institutions themselves, including institutional administration. Future research is suggested in the areas of theory of personality development, the effects of cooperation and coordination on institutional autonomy, governance, and teachers and teaching. A list of references and an annotated list of reports on research on higher education from 1966-67 are appended. (MSE)

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A BRIEF HISTORICAL REVIEW OF RESEARCH ON HIGHER EDUCATION, 1900-1960

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At the turn of this century scientific knowledge made immense contributions to education. These contributions which were to increase with the advances of modern science, laid the basis for research on higher education.

The psychology of learning was given a tremendous boost. Experiments carried out by Thorndike, Watson, Kohler and many others in the early years of this century yielded very valuable scientific knowledge on the structure of habit, the trial and error principle, the role of reward and punishment, the neural bases of learning, the principle of conditioned response in learning and the importance of the goal-seeking attitude. Above all the old theories of mental discipline and transfer of training became suspect in view of the new experimental psychology in the latter part of the nineteenth century. Individual differences had become of great concern to psychologists.

The period of scientific exploration of individual differences began with the establishment of Wundt's Laboratory at Leipzig in 1879, Galton's Anthropometric Laboratory in London in 1882, and the Beaunis-Binet Laboratory at the Sorbornne in 1889. The startling findings as to individual differences gradually led to an emphasis on the differing capacities of individuals, thus recognizing the need for taking these varying abilities and interests into account in the learning process. Studies in heredity and original nature conducted by James Cattell and Edward Thorndike supported experimental psychology.

A new day had dawned. It is true that the science of psychology is not the discoverer of the fact that individuals differ according to

mental capacities. The educational philosophies of Plato and Aristotle reveal the existence of significant differences in intelligence, and most educational theorists and pioneers have held to this since. Their views, however, were based, not upon systematic and experimental study but upon mere observation. As the nature and extent of human differences passed from speculation and opinion to objective study, the growth of experimental psychology was accompanied by the development of tests whereby individual abilities and traits might be measured. This development can be traced primarily to the work of Alfred Binet and those who built on the foundation he laid.

The beginning of interest in educational research as such may be traced to J. M. Rice, whose work initiated in 1894, was characterized by educational measurements and the use of objective data. His work on spelling tests was badly criticized, and did not bear immediate fruit. However, it was a source of inspiration to Thorndike, Counts, Ayres and others who have contributed to the research movement. "If Dr. Rice is to be called the inventor of educational measurement, Professor E. L. Thorndike should be called the father of the movement," wrote Leonard B. Ayers. [1]

In 1902, Dr. Rice suggested that departments of educational research be attached to the United States Bureau of Education, the National Education Association and the departments of pedagogy in the universities. S. A. Courtis, following the suggestion of Rice, worked hard during the next decade to establish departments of educational research in higher institutions of learning. As interest in the testing movement grew,

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[1] Leonard P. Ayers, "History and Present Status of Educational Measurements," The Measurement of Educational Products, Seventeenth Yearbook of the National Society for the Study of Education, Part II, 1918, p. 12.

centers for distributing tests were established at the University of Oklahoma, 1913; Indiana University, 1914; University of Iowa, 1914; and the University of Minnesota, 1915.

The research activities of these departments as well as of individual graduate students and staff members during the first twenty years of this century were confined largely to educational measurements. Statistical methods must be considered as an important basis of inquiry, and in this connection Sir Francis Galton's development of the method of the method of correlation had made a very significant contribution. Not much was accomplished during this early period, however, and it was not until after 1915 that achievement tests and intelligence tests became available.

Most of the research studies between 1900-1910 were concerned with elementary and secondary education, such as the age-grade study of the elementary schools of New York by Superintendent Maxwell in 1904. In that year, too, Thorndike published the first book dealing directly with mental measurements. This book was important not only because for at least ten years it remained the standard, indeed the only book of its kind which provided a genuine guide to students of educational measurements, but also because of its implications for research on higher education. The book was the result of Thorndike's studies of mental fatigue and transfer of abilities. In it he made proposals for revision in college entrance examinations. There was concern for higher education here.

Research in the field of higher education at the Bureau of Education, was made possible by a congressional appropriation of $3,000 in 1910. A Division of Higher Education was created within the Bureau of Education by order on February 3, 1911. The division was given "charge of all matters,

including statistical work, relating to higher education." [2] Early efforts were devoted to the gathering and compiling of information on institutions of higher learning. The survey field was entered in 1912 when reports were made upon twenty-five public and private institutions of higher education. The work was to grow in importance with the advance of the scientific method.

The scientific method with its emphasis on facts was an important basis for much of the growth of research on higher education. Things were changing. Periodic information about teaching load, size of classes, research projects of faculty members and balances left in important budget items were being collected by administrative offices. These facts produced fertile ground for research on higher education. While some research studies of great importance called for experimental procedures, a large number depended upon the compilation and interpretation of data collected for the purpose. The need for facts in higher education had become a most important requisite for research studies.

Objectivity and specificity characterized these research studies, as the methods of science observation, hypothesis, and verification, were applied to the field of education. Science aims at exactness, and is not satisfied with anything that is vague or indeterminate. Many colleges demanded that the faculty members state the objectives of each course in terms of the specific changes the course was expected to bring about in the students. Formerly, college objectives, were usually stated in the most general terms, such as good character, the enrichment of life and insight into the universe. But it was found that these general terms did not afford a very useful criterion for deciding upon the procedures that

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[2] Darrell Hevenor Smith, The Bureau of Education: its history, activities and organization. The Johns Hopkins Press, Baltimore, Md., 1923, p. 31.

the college should follow in order to achieve those goals. The need for more specific terms was keenly felt.

Several research studies grew out of the new emphasis on specificity. When specific objectives in medical school anatomy courses were outlined, it was then possible to check the long-standing claim that one cadaver was required for each couple of anatomy students. Studies were carried out by Scammon and Jackson (1916) to verify the assumption that these precisely defined outcomes could be achieved with three or four students to each cadaver. It was only after it was possible to analyze the outcomes of curricula or of individual courses in specific terms, that such far reaching research programs as the Modern Language Study under the auspices of the American Council on Education, or the National survey of the Education of Teachers by the Bureau of Education, were made possible earlier in this century.

The Bureau of Education also compiled classified lists of institutions on various bases. Classification is a method of science; it is a way of knowing or regarding things. Reports from the Bureau were made upon standardization of higher educational institutions in Oregon and Virginia. The problems of standardization and accrediting were real and immense. There was no clear definition of what a standard college is. Many studies were then made with this in mind in an attempt to solve important problems. Low "standards in medical schools were more obvious in their harmfulness, and more easily detected than the low standards in other types of institutions. Consequently, research associated with standardization began first with medical schools. The famous Flexner Report made in 1910, to the Carnegie Foundation for the Advancement of Teaching, denounced a large number of medical schools many of which left the field.

As the standardization movement developed there was great dissatisfaction with the quantitative criteria which were used to discriminate among institutions. Many studies showed that there was little correlation between the ratings of colleges in any single quantitative standard and any method of academic achievement of students. It became clear that quantitative standards should be replaced by qualitative standards. This movement was accompanied by the trend toward individualized instruction. Indeed, both movements rest in part upon the same body of information, namely, the results of fairly objective tests. Adaptations of both the psychological and achievement tests in the lower schools had been made for college students. Studies, such as that by Joseph Johnston (1916), were made to find out what happened to college students having varying high school records. As a consequence of these studies, demands grew that college requirements be adjusted to the varying abilities and interests of students.

This demand provided a stimulus to research for appraising student abilities. Psychological tests, devised by the American Council on Education as well as the sophomore testing program by about two hundred colleges revealed the wide differences in native ability among college students as individuals and among students as groups attending different colleges. In 1918, the Pennsylvania Study which was conducted by the Pennsylvania colleges in cooperation with the Carnegie Foundation for the Advancement of Teaching showed similar results. About the same time, the Cooperative Test Service of the American Council on Education carried out objective tests in several fields. These nationwide testing programs, supplemented by hundreds of other studies, helped to establish the fact that great differences of ability, aptitude, temperament and previously acquired information and skill exist among students. And this was bound to generate

further developments in research on higher education.

Research on higher education was being affected by the scientific measurement movement of D. C. Pearson and E. L. Thorndike as well as by the development of objective tests. Perhaps the most outstanding result of the latter is that it emphasized the need for the more precise measurement of the outcomes of instruction. This has paralleled the movement to formulate objectives in more definite terms. Together these have stimulated research programs and made possible effective work upon them. Of these research programs, four deserve special mention, namely, comparisons of methods of instruction by E. Hudelson (1920), the construction of more satisfactory objective examinations by Eurich and Tyler (1920's), and inter-college comparison of achievement by the Cooperative Test Service (1920).

Other forms of examinations pertaining to college admissions also developed. The College Entrance Examination Board carried out a series of studies in that direction. The Board was first organized at a meeting held at Columbia University, New York, on November 17, 1900. Gradually the Board sought information comparable with what was revealed by college aptitude tests, i.e. emphasis was placed on psychological factors as well as mastery of subject matter. A special form of college aptitude test was developed by the University of Chicago in the 1920's. During that same period, too, studies were carried out in an endeavour to discover what high school courses provided the best preparation for college. The studies of Johnston and others were very useful in predicting college success. A double effect was achieved. Many students who had planned to enter college realized that they should not enter at all or that they should go to a certain type of college. Others who did not plan to go to college were convinced by their test results that they

should; and many of these often did quite well. Hence, better college selection resulted.

One other important development in the area of tests and comprehensive examinations deserves to be noted. While the new type tests were designed to cover the whole range of objectives of a given course, the comprehensive examinations were devised to test the integration that students were making of materials studied in several courses under various instructors. The development of the comprehensive examinations such as those resulting from the studies of A. J. Jones (1919) encouraged divisional organization by bringing related college departments into more intimate groupings. Indeed, as Fred J. Kelly observed, "the extensive research in the construction and utilization of comprehensive examinations is important chiefly because it has made easily possible experimentation with different types of college organization and instruction." [3] They helped to facilitate the development of honors courses and other forms of independent study. Hence, they had some effect on curriculum development.

The college curriculum underwent tremendous changes during the first quarter of this century in the wake of mounting demands for the introduction of more scientific courses. Attacks on classical studies and on the function of the college as a preserver of ancient traditions, were frequent. It was only at the close of the nineteenth century that science subjects were at last properly accepted at Harvard University. The rise of science was accompanied by the remarkable expanding areas of knowledge. The elective principle which President Charles Eliot introduced at Harvard after he came to office in 1869 had spread rapidly and there was much confusion in curriculum offerings. After several years certain curriculum patterns

[3] Fred J. Kelly, "Contributions of Research to Higher Education." 37th Yearbo of the National Society for the Study of Education, Part II, 1938, p. 251.

emerged, notably among them being the general education movement which began at Columbia University in 1919. This consisted of comprehensive survey courses followed by a major concentration.

Curriculum innovations in the early decades of the twentieth century also include the group distribution and major concentration plan, the functional curriculum of the Minnesota general college type, the prescribed four year curriculum focused on great books, individual guidance and "personalized majors" of the more consistent progressive colleges, and variations and combinations of the other types. These conditions caused much concern and constituted a platform for research studies. Prominent among these studies was that conducted by Fred J. Kelly and John H. McNeely (1933). They studied exhaustively the control and curricular offerings of all institutions of higher education, both public and private, in Colorado, Indiana, Kansas, Michigan, Oklahoma, South Carolina, South Dakota, Texas, Virginia and Washington. This study was made possible through the Carnegie Foundation for the Advancement of Teaching in cooperation with the U. S. Office of Education.

Other agencies were also interested in curriculum development. The National Herbart Society for the Scientific Study of Teaching had demonstrated, since 1895, its desire for a more scientific basis for the curriculum. This new interest in the scientific study of curriculum problems advanced with the development and establishment of new and different criteria for the selection and organization of subject matter. The culture-epoch or recapitulation theory, which was greatly elaborated upon in the Society's first yearbooks, was an offshoot of the concept of evolution, then the subject of intensive investigation in the biological sciences.

Teachers at all levels became more and more concerned with such new topics as the interest and sequence of subject matter, the short comings of mental discipline, and the correlation, coordination and concentration of studies. Increasing reference to Herbart, Wundt, James, Hall, Binet and others expressed a willing recognition of educational psychology as a basic educational science, although with emphasis less upon the content than upon the method of the curriculum.

The methods of the curriculum research movement between 1900 and 1930 included the psychological analysis of the learner, educational analysis of the accomplishment of the learner, analysis of social need, experimentation, origins and development of curricular practices through the historical method, survey of current practices and policies, and integration or the combining of data from all types of research. Much of the research on curriculum was done at the lower levels, but higher education was also affected. Statistical procedures, observation, and questionnaires were used on a large scale to attain a survey of specific subjects, courses of study, and instructional activities.

Quantitative methods of statistics were more and more widely used as the scientific movement in education gained momentum. Training in the use and interpretation of statistical methods was obtained in many schools of education and normal colleges. The laboratory method was also used extensively. Laboratory tests conducted about 1900 to determine the nature and extent of individual differences, laid a foundation for later studies of a more complex nature. The value of some of these earlier laboratory studies were hardly apparent to many people until the decade of 1910 to 1920, when they provided the basic materials for intelligence tests. Between 1900 and 1915 many laboratory studies concentrated on the characteristics of

mental processes, and noted the enormous significance of the social and intellectual backgrounds of youth. Other techniques of research included case studies and social surveys. These methods helped to supply valuable information supplementing that obtained through the testing of intelligence, aptitudes and personality.

The personality factor was being given greater and greater attention following rising criticisms of the objective tests. Many contended that these tests were too factual, emphasizing not personality development, but encyclopaedic learning. It was thought that in order to assure that the tests covered all the expected outcomes of a given course, the complete set of objectives of the course should be drawn up prior to the construction of the course. This would then provide an opportunity to include such less concrete outcomes as "growth in capacity to draw inferences," and "growth in effectiveness in self-direction."

This new emphasis on the growth of personality was the essence of the Pennsylvania Study of the 1930's. This study, which was generally controlled by the Progressive Education Association, involved some thirty high schools and over one hundred colleges. These colleges agreed to accept graduates of the specified high schools with little regard for the traditional college requirements, provided that recommendations from the principals were favorable. In this connection, Fred J. Kelly, Chief, Higher Education Division, U. S. Office of Education, observed:

> By means of this experiment, it is hoped that colleges will be provided with the criteria for setting up altogether different types of college requirements, based not so much upon subjects studied as upon the growth in personality and intellectual power.[4]

[4] Fred J. Kelly, "Contributions of Research to Higher Education." 37th Yearbook of the National Society for the Study of Education, 1938, Part II, p. 254.

Psychological growth, like biological growth, was of great interest to scientists in the light of the Darwinian theory of evolution and natural selection. The two essential features of psychological growth, differentiation and integration, have been postulated for physiology and biology as well as psychology. Growth is a positive process as John Dewey contended; it is spontaneous. It is also a purposive activity and a process of organization. This was the scientific basis from which much impetus for research on student growth and development generated, which began in the 1930's. Much of the early work in personality adjustment was restricted to children at the elementary and in some cases, at the secondary school level. Such studies were important because of their bearings on higher education. In 1930, Carl Rogers conducted a study which measured personality in children between nine and thirteen years old,

Rogers' case histories revealed the importance of early experiences in the life of the child. [5] Gradually events of the college years began to be viewed as mere unfoldings of powerful inner trends begun in infancy. Intensive research in personality development at the college level was aided further by the increase in theoretical sophistication in this area. One of these was the factor theory which deals with the broad functional unities aiding an understanding of the complex interplay of desires, motives, emotional factors and cognitive ability which constitute personality. The social theory was also important to the development of research on higher education. Education began to be evaluated from the standpoint of the social patterns set for individuals and groups to follow, and the methods used to bring social pressure to bear upon conduct. The steady growth of the behavioral sciences, particularly anthropology,

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[5] Carl R. Rogers, Measuring personality adjustment in children nine to thirteen years of age. Bureau of Publications, Teachers College, Columbia University, 1931, pp. 45-74.

sociology, and psychology, a broader conception of education as encompassing not only intellectual attainment, but also emotional and social development as well, and advances in the theory of personality development were some factors that contributed to the increased interest in student development.

Early studies on students' behavior followed closely on the pioneering work in intelligence testing. Even before 1900, Cattell administered a number of tests to a large sample of students at Columbia University (1896). But he tried to measure differences in sensory perception, supposedly as a correlate of intelligence in contrast to the cognitive and attitudinal traits which received greater attention in the years after. It was not until the 1930's that further investigations were made on the abilities or aptitudes of groups. In 1938, Learned and Wood carried out an investigation of diversity among students and among institutions. In that year, too, Nelson inquired into student attitudes in four public universities and fourteen denominational liberal arts colleges. Other studies throughout the 1930's dealt, among other things with the environmental factor. The studies of Alice Leary (1935), Beth Wellman (1937) and many others seemed to indicate that enriched environment may produce a marked change in the intelligence test score of students. Interest in environmental factors grew as it came to be realized more and more that no characteristic human traits can be ascribed wholly to hereditary factors, nor wholly to environmental factors. Rather, as experimental embryologists and geneticists have shown, these traits are the results of the dynamic interrelationship of the growing organism and its milieu. This development had its roots in the studies of J. Cattell, who in 1906, sought to evaluate the impact of environment on men and women of science and letters. The results of Cattell's research showed that in those geographic areas of the United States where formal and informal educational opportunities were superior, a larger number of men

and women in science and letters were produced. The question of personal adjustment then became a very important factor.

Not only personal adjustment, but also thinking processes and attitude measurement were gradually receiving more attention as efforts were made to bring testing practice into line with the accepted purposes in education. Criticisms of past methods of research led to a distinction between educational measurement and evaluation. Measurement came to mean a mode of data collection while evaluation signified the assigning of values to the data collected. The 1930's therefore saw the beginning of a change in emphasis from a mere study of facts to a study of values.

The first real evaluation of educational programs was that of the honors program at Swarthmore College in 1923. At that time, the Swarthmore staff relied on a written and oral final examination to assess the honor student's performance. During the 1930's, the University of Wisconsin also carried out evaluation through its short lived Experimental College program. The studies of Nelson (1936) and T. Newcomb (1943), provide further evidence of the trend towards more intensive evaluation. Nelson's findings revealed changes in attitudes related to learning experiences for students in various colleges and universities. The work of Newcomb dealt partly with the assessment of changes in attitudes and basic values: this was the first attempt at a comprehensive evaluation of educational influence during the college years. This trend was to see even greater fulfillment in the study of P. L. Dressel and L. B. Mayhew (1954), whose findings revealed that while the student's ability to think critically was improved as a consequence of institutional programs, the amount of gain varied with the institution.

Institutions of higher learning had become very complex organizations as a result of the great influx of students after World War I. It is true that during the Great Depression there was a slight decrease in enrollment figures at several universities and colleges. By 1940, however, the economic situation improved and enrollment trends continued on the increase. The annual studies made by Wells in 1939, showed that since 1928 there had been an increase of 41 per cent in the number of junior colleges and an increase of 291 per cent in the enrollment in such institutions. And despite the Depression, the study of W. Hagerty and G. Works in 1937, revealed that enrollments in all types of institutions had increased 96 per cent during the fifteen year period 1919-19 to 1933-34.

The expanding size of institutions in the 1930's and 1940's was accompanied by the expanding role they must play in the education of youth. This fact prompted research on colleges and universities in many areas including accounting, accrediting, admission, degrees, curriculum and instruction, cooperation and coordination, and administrative organization. One of the basic needs at this time was the proper organization of personnel staff for the guidance and advisement of students. Arthur Klein, in his survey of Land Grant colleges and universities in 1930, reported that only seven of the institutions studied had set up a central organization for advising students. By 1940, personnel services had improved considerably as the report by John Russell of the Proceedings of the Institute for Administrative Officers of Higher Institutions, 1940, showed. The report explained the need for even better student personnel services as seen not only by representatives of colleges and universities, but also by representatives of industry. For the role of industry in higher education was by no means small.

Great leaders of industry through philanthropic motives became interested in higher education at the beginning of this century. Among such men was Andrew Carnegie. Since 1887, Mr. Carnegie had told the British Prime Minister Ewart Gladstone that "he should consider it disgraceful to die rich."[6] During the following decade, Mr. Carnegie anxiously looked forward to withdrawing from the Carnegie Company, his principle enterprise. On March 11, 1901, J. Piermont Morgan purchased the company for three hundred million dollars. By this time Carnegie's names had already been associated with giving.

On May 8, 1905, a certificate of incorporation was drawn up in New York, signed by five corporators, (Butler, Humphreys, Pritchett, Franks, and Vanderlip) and approved by Hon. H. A. Gildersleeve, Justice of the Supreme Court of the State of New York. It legally created the Carnegie Foundation for the purpose of "providing funds to establish retiring pensions for teachers of universities, colleges and technical schools in the United States, Canada and Newfoundland, and...aiding the cause of higher education." [7]

From the start, research on higher education received tremendous help from the Carnegie Foundation for the Advancement of Teaching. Indeed, the chief reputation of the Foundation was to be acquired through its studies rather than through its professors' pensions. By 1908, Henry Pritchett, who was convinced that study and educational inquiry underlay the Foundation's pension activities, matured a notion of investigating graduate, law, medical and theological schools at an approximate cost of $18,000. The success of the 1910 Flexner Report on medical education prompted the creation of a Division of Educational Enquiry in 1913. Mr. Carnegie himself had expressed interest and pleasure in the Foundation's helping"to solve our problems of education from a national point of view." [8] In 1911, he endowed the Carnegie Corporation

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[6] As quoted by Howard J. Savage in Fruit of an Impulse, Forty-five Years of the Carnegie Foundation, 1905-1950, New York: Harcourt, Brace and Co., 1953, p. 24.

[7] Ibid, p. 44.

[8] Ibid, p. 108.

or New York with the amount of $125,000,000 for the advancement of and diffusion of knowledge among the people of the United States. The Foundation and the Corporation worked closely together.

A new phase in the relationship between the Carnegie Corporation of New York and the Foundation was brought about in 1924 whereby "joint projects," i.e. educational studies would be financed by the Corporation and supervised and managed by the Foundation. Throughout the years, much has been accomplished. Two major research projects in the 1930's are worthy of note, namely the Progressive Association's Eight Year Study of the relation between secondary school and college, and the Owatonna Project for research into the validity of psychological and educational assumptions prevalent in the field of art education. Other studies during this period include the New York University inquiry into factors in the failure or success of college teachers and the study of the effect of the depression on higher education conducted by the American Association of University Professors.

During the decade 1940-1950 several joint projects were carried out. On March 17, 1949, the University of Missouri received $50,000 for the improvement of undergraduate instruction in Missouri colleges. In November of that same year, a grant of $45,000 was made to the American Council on Education for a study of general education in California community colleges. A Program of Grants-in-Aid for teachers in southern colleges was also made possible through a Foundation-Corporation grant of $955,000 in 1949. This cooperative experimental Program of Grants-in-Aid in the south was well received by the Committee on Higher Education of the Southern Association of Colleges and Secondary Schools.

The research on higher education sponsored by the Carnegie Corporation in the last two decades has been very outstanding indeed. The actual research activities at the Center for the Study of Higher Education, University of California, Berkeley, began with a grant from the Corporation for

comprehensive investigation into diversity in American Higher Education. The Corporation's concern for American Higher Education also stretches into the future. In January, 1967, the Corporation voted $300,000 to the Carnegie Foundation for the Advancement of Teaching for the creation of a Commission on the Future of Higher Education. The Commission was headed by Dr. Clark Kerr, former President of the University of California, Berkeley. According to Dr. Kerr one of the chief questions with which the Commission was concerned was "What percentage of the population is expected to go on, after high school, to some form of higher education?" [redacted]

Other foundations, especially during the 1950's, have made great contributions to the development of research on higher education. First among these, is the Ford Foundation, which was established on January 15, 1936.[9] In 1943, the Foundation acquired about 90 per cent of the Ford Motor Company stock valued at more than two billion dollars. In 1951, the Foundation created the Fund for the Advancement of Education. A series of grants were made to selected institutions of higher learning between 1952-1954 to enable them to undertake studies of their own effectiveness. From 1959-1965, the Foundation gave a total of $32.8 million to forty-nine colleges, universities and departments of education for the improvement of teacher education programs. In 1963, a grant of $246,000 was made for a new social sciences curriculum to be developed by Educational Services Incorporated, and in 1965, $25,000 was given for the study of the University of Pittsburg management. In all, grants totalling $2 million were awarded by the Foundation for studies and experiments to improve education. The emphasis on research has been to help selected in-

[9] Merle Curti and Robert Nash, Philanthropy in the Shaping of American Higher Education, Rutgers University Press, New Brunswick, New Jersey, 1965, p. 228.

stitutions attain new levels of academic quality, administrative effectiveness and financial support.

Financial problems plagued many colleges and universities in their endeavors to development better programs. In 1949, the Carnegie Corporation and the Rockefeller Foundation together provided $450,000 in order to enable the Commission on College and Industry of the Association of American Universities to sponsor nine studies of the financial problems facing higher education in the United States. The Rockefeller Foundation which was chartered in 1913 has also given generously for the support of higher education through the years. One of its most recent grants toward the development of research on higher education was that of $25,000 to Brooklyn College of the City of New York for the completion of a college talent search project in 1966.

The search for talent reveals to some extent the business objectives of corporations support for research on higher education, as well as the close relationship between education and industry. For indeed, since the Civil War, most of the money granted to the colleges and universities in the form of philanthropy, was made in the world of commerce, finance and industry. And business became interested in discovering good talent for its own enterprises. Many students too, attending college with a vocational outlook in mind. In the 1930's certain investigations revealed that there was some relationship between talent and economic and occupational level of parents. Richard Lang found high correlations between socio-economic status and certain other factors. Findings from other studies lent much support to the generalization that a favorable environment is very important for success in life.

Success in life stems from a desire for progress, and perhaps the greatest environmental factor involved in this is industrialism. Since World War I, improvements in science and technology have altered the structure of educational opportunities and forced the educational system to function as an agent for the supply and selection of a continually widening variety of manpower. Universities have expanded in response to the rising demands of the professional and managerial occupations. Formal education became more and more important to students looking forward to successful careers. The content of higher learning was bound to be affected by the new forces of industrialism.

Advancing industrialism in modern society has had a great impact on higher education. Industrialism speeds up the rate of social change and affects greater social mobility. It also throws new burdens on educational institutions - the burdens of mass instruction, promotion of scientific and technological advance, occupational recruitment and social selection. All this has had tremendous influence on the sociology of education which became a well-organized movement by 1930.

Before 1930, the main preoccupation of the schools and colleges was with personality training or "Americanization" for a society assumed to be egalitarian. With the rise of technological society since the turn of the century, however, education took on more and more an increasingly selective role. Interest in the study of social selection through education gathered momentum, but slowly. Lester Ward had insisted on equality of opportunity in the service of social progress through education. W. L. Warner and others emphasized the dual role of education in maintaining status quo as well as promoting mobility.

Research into education, as an avenue of social and occupational mobility began with inquiries, on the one hand, into the educational antecedents

of various elites, and, on the other hand, into the social composition of schools, colleges and universities. The spirit of inquiry in this field has been imbued with egalitarian ideals. Once the facts of selection are studied, investigations are directed towards the obstacles to "perfect" representation of the population at large within selective institutions. Studies of the class conditioning of educational chances have been supplemented by research into the influence of class on educational performance and vocational aspiration. Characteristic of the latter is A. Davis' study on social class influences upon learning (1948). Educational and social performance in schools and colleges have been examined both for conscious and unconscious discrimination in teaching or assessing pupils, and for conscious and unconscious resistance to learning in particular educational environments by students of given social origins.

The influence of egalitarianism on this type of research has received considerable support from the Federal Government since World War II. The government soon became officially committed to equality of opportunity and responsible for ensuring the supply of high scientific manpower. The government even conducted its own investigations, for example, the President's Commission on Higher Education, appointed by President Truman in 1946. The role of the Federal Government increased by leaps and bounds as the study of educational institutions became more closely identified with human betterment.

The Federal Government has always shown keen interest in educational research. During the first quarter of this century its support for research on higher education was quite limited, however. Research, in those days, was not given as much attention. Professors spent more time in teaching undergraduates. But this was not to continue for long. A change came about between 1925 and 1940. Funds for research were made available to select in-

stitutions on a limited scale. Graduate scholarships expanded and more professors were employed. As teaching loads were gradually reduced, scientific research began to flourish. Gradually after World War I, the Federal Government stepped up its aid to research programs in many fields. In his report to the legislative reference service of the Library of Congress in 1956, Charles A. Quattlebaum states:

> During World War I, the Government began entering into contractual arrangements with colleges and universities for the performance of research activities in connection with national defense. Some arrangements of this kind were continued after the war. During World War II, the scope of such research and the number of fields of investigation were greatly increased. [10]

One of these fields of investigation to receive increased support from the Federal Government is higher education. The years after 1950 were to see further development of research on higher education. The historical study by Helen Brookshire in 1955 revealed that during the depression of the 1930's hundreds of students were compelled to withdraw from college for economic reasons. Many colleges had been forced to close. This situation had prompted more Federal aid to students as well as more funds for research on higher education. The critical shortage of well-educated manpower in many fields was of great concern.

The study carried out by Dr. Nicholas DeWitt between 1952-1955, and which was financed by the National Science Foundation, also revealed some alarming facts. Research showed that the Soviet Union in comparison with the United States had been graduating almost twice as many specialists in certain fields. Between 1928 and 1954, the Soviet Union had graduated about 682,000 professional engineers as compared with approximately 480,000 for the United States. Soviet graduates in medicine for the same period had outnumbered those in the United States by more than two to one. Government interest in and responsibility for research on higher education were further accelerated by the launching of Soviet Sputnik in 1957. This interest which had been

stimulated in the 1940's by the National Science Foundation, was more rapidly stimulated in the 1950's by the National Defense Act and the Cooperative Research Program.

Cooperative study of higher education received no little aid from the Federal Government. During 1957, twenty-seven institutions of higher education agreed to cooperate with the Office of Education in a study of the problems growing out of multiple student applications and admissions and the influence of student financial ability on attendance and persistence in college. This was the first project in which a group of institutions joined efforts to attack a common research problem in cooperation with the office under provisions of Public Law 531 (1954), Eighty Third Congress. Federal funds amounting to $75,000 were used to help defray expenses of the study. Some studies of this project included "Factors relating to Application, Admission, Registration and Persistence in College" by E. V. Hollis (1957) and an "Experimental Study of the Admissions Interview in teacher education for predicting success in teaching," by William H. Edson (1957).

This inauguration of a general program of cooperative research in 1957, was the beginning of the systematic research programs in the field of education to be conducted outside the Office of Education with Federal support administered by the Office. It was the quest for educational improvement through research which prompted such authorization for the Office to administer certain specialized programs of a cooperative nature. The purposes of the Cooperative Research Program were (1) to expand knowledge about the educational process, (2) to develop promising educational programs and techniques, (3) to disseminate results of research and related efforts to educators and the public, (4) to train researchers in the field of education, and (5) to carry out related activities for the improvement of education.

The improvement of education was also a major concern of the Center for the Study of Higher Education, University of California, Berkeley. A Federal grant had established the center in 1957. According to Dr. T. R. McConnell, the first director, the research and development facilities will "accelerate innovation and improvement in the provision of education beyond the high school." In 1965, the Federal Government made a five year grant of $4,339,000 to the University of California to seek improvements in higher education. The Center for the Study of Higher Education at Berkeley was authorized by the U. S. Office of Education to carry out intensive investigations into student careers and the impact of higher education, organization, administration and influence, and change and direction in higher education. A new Center for Research and Development in Higher Education was established in 1966 to improve the quality, efficiency and availability of education beyond the high school. [illegible] Federal funds also established two other centers about the same time - a Research and Development Center in Teacher Education at the University of Texas, and a Center for Research and Development in Teaching at Stanford University.

The new centers have brought together investigators from various disciplines to study the variety of problems associated with the adaptation of the university to the complex demands of an industrialized democratic society. This factor in itself is a new development in research on higher education. The first thirty years of this century saw research in education monopolized by psychologists. Since then, however, the new social forces of industrialism, and their impact on higher education as well as on students, have brought social scientists, social psychologists, anthropologists and sociologists into the field. By 1950, these social scientists had become intensely interested in the college student as a person, and what happens to him as a result of his college experience. Certain factors which have aided this new development

include the considerable theoretical and empirical advances in major branches of work during the first quarter of this century; new materials and theories relating to the organization and development of the human personality and to cognition and motivation, such as Murray's use of needs as the basis for personality and White's conception of personality as constantly changing and adapting through time; advances in the social psychology of small groups as well as of large-scale organizations, and in the application of the anthropological approach to the cultures and subcultures of modern societies.

There are, also, other powerful motives of a more ideological nature at work helping to direct the characteristic choice of problem as well as the formulation of approach by social scientists studying higher education. On the one hand there is the great concern for contemporary American social and intellectual life in general and of academic life in particular. Perhaps the sociologist David Riesman is the most representative and influential figure here. On the other hand, there is a distinct sense of educational mission which stems from the American ideal of "equality of opportunity." The big question is no more "Who should go to college?" but "Who should go where?" The psychologist Nevitt Sanford is probably the most representative figure of this group. It must not be construed, however, that these two groups are out of sympathy. Indeed, both are deeply concerned with the fate of liberal education, although for different reasons. They contribute regularly to [illegible] the Center for Research on Higher Education. Yet, the problems they chose are different. The Riesman-led group has as its great problem, the viability of the academic community and its contribution to the social and intellectual life of the nation. The big problem of the Sanford-led group is student development. Common problems straddling both camps include student values and the educative impact of college or university.

The impact of college or university became a big issue in the 1950's. Earlier, much attention was paid to the characteristics of the student body as determinants of the college atmosphere or of its educational effectiveness. During the first decade of this century, the question of general environmental factors had been considered. In the 1950's, it was the more specific problem of college impact. Knapp and Goodrich (1952) and Knapp and Greenbaum (1953) conducted studies related to the production of successful scientists and scholars, placing more emphasis on the impact of college than on the quality of students. Holland's research in 1957, and the studies of McConnell and Heist in 1959, have shown, however, that the product is a function of "input." Research has since sought an explanation in the interaction between student material and college environment.

Work on students and on the quality of college environment continued to gain momentum in the 1950's and 1960's. Sociologists, psychologists, and statistitians continue to attempt to document the remarkable diversity of student population. New psychological tests have been constructed. The Omnibus Personality Inventory (OPI) has been developed at the Center for Research and Development, University of California, Berkeley. These scales measure a variety of characteristics such as intellectual and aesthetic attitudes and interests, social behavior and values, beliefs, etc. Similarly, the characteristics of a college or university are put in behavioral terms and incorporated into the College Characteristics Index (CCI) devised by Pace and Stern.

Still other areas of this work continue to attract the attention of sociologists and anthropologists. Among these are "campus culture" (i.e. the informal social life of students, including their informal relations with the academic staff), and the institutional framework of the college (its traditions, wealth, clientele, mode of control). In 1960, Martin Trow

and Burton Clark conducted a study on the varieties and determinants of undergraduate subcultures. Three other important investigations carried out in 1962, may be noted in this connection: the Kansas study of student culture by Professor Everet Hughes, Professor Stanley King's study of Harvard students and the Mellon Studies at Vassar College under the direction of Professor Nevitt Sanford.

Other studies have been directed toward an understanding of the university teacher whose role has also been affected by the changing social context of industrial society. Many studies before and after World War II, including Logan Wilson's Academic Man (1942) have provided descriptions of modern conditions of recruitment, promotion and mobility of professors. The work of Caplow and McGee, The Academic Market Place, (1958) deserves special mention for the economical penetration of the current problems of recruitment to and mobility within institutions of higher learning. Caplow expressed deep concern for the competing pressures of research, teaching and administration on the modern university teacher. In the 1960's, many studies have probed the career decisions, preparation, status, services and satisfactions of college teachers. There has been much talk about special programs for preparing college teachers. In 1964, a study by Ewing and Stickler revealed that 91 leading universities were currently offering courses on college teaching.

Teaching and learning in colleges and universities, and the nature of the institutions themselves, are the two broad areas with which research on higher education is now mainly concerned. These broad objectives can be gleaned from the massive study of the Berkeley Campus of the University of California (1965-66) as well as from many current studies. On March 8, 1965, the Emergency Executive Committee of the University of California, Berkeley, offered a resolution calling for the establishment of a Select Committee on Education for the following purposes:

(a) to find ways in which the traditions of humane learning and scientific inquiry can best be advanced under the challenging conditions of the scale that confront our university community.

(b) to examine the various changes in educational programs currently under consideration in the several schools and colleges; to seek by appropriate means to communicate information concerning these programs to the wider campus community; and to consider the implications of these programs in the light of (a) above. [11]

Research on programs of instruction received only scant attention during the 1960's. And whatever was done earlier pertained more to testing programs. In 1963, Clifford Erickson reported experiences and accomplishments of the Chicago City Junior College in its television offering, including some assessment of student characteristics, achievement and persistence. Lamar Johnson's study in 1964 concentrated primarily on investigating faculty services inaugurated by junior colleges. His inquiry revealed a number of developments. Junior colleges were beginning to develop instructional rooms with special facilities for teaching large groups; good use was being made of a wide variety of technological aids to learning; team teaching, independent study and work-study arrangements were introduced into junior college programs, while class scheduling and other phases of college life were affected by innovations.

Important innovations have to a greater or lesser extent accompanied research on higher education. Higher education in the United States

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[11] Academic Senate, Education at Berkeley, Report of the Select Committee on Education, University of California, Berkeley, 1966, iii.

is by no means static, and sooner or later must adapt itself to the changes generated by the forces of technology and industrialism. Only through a thorough understanding of the process of change is it possible to bring it about deliberately. And it is here that research on higher education finds a very important place. Too often in the past, educational planning has been done primarily on a programmatic basis without the use of research findings. Now individual institutions and other agencies rely heavily on research findings in order to effect improvement in planning and implementation. For indeed, today, as a consequence of research, there is a better understanding of many aspects of higher education: about resources of specialized talent, about the productivity of the various institutions in the humanities, the social sciences and the natural sciences, and about the structure, government and administration of higher education.

The term "administration is still used in higher education, but its importance is somewhat obscured these days by at least three relatives - governance, decision making, and management. At times, management tends to have a broader meaning than administration, in as much as the latter is sometimes interpreted to exclude policy formation and coordinated planning. Governance is the process or art by which people associated with a college institution establish and carry out rules and regulations. Contemporary university administration is quite different from what it was in the past. Earl J. McGrath in 1936, traced the evolution of administrative offices in institutions of higher education in the United States from 1860 to 1933. He found that practically all of these offices had developed originally out of the teaching positions of the faculty. McGrath found that the Master's degree was the highest degree held by more than half the presidents, and vice presidents. His study also revealed that the median date of establishment of the deanship was 1913. By this time, Frederick Taylor's principles of

scientific management had been affecting all levels of educational administration.

In 1911, Frederick Taylor published The Principles of Scientific Management, in which he advanced the thesis that administration is a true science, resting upon definite laws, rules and principles. This was followed by a tremendous interest in the problems of administration. In the universities, the problems multiplied with growth and expansion as a result of industrial progress. As liberal arts colleges became universities, administration became specialized, differentiated, and bureaucratic. New positions had to be created - appropriate deans, secretaries, directors, provosts, etc. Then in the 1950's came the management consultants. Universities had become big enterprises and were now aware of it. More changes were affected in both academic and faculty organization. Departments were given standardized definitions and put into divisions by subject matter. Instructional activities, student-personnel activities, public-relations, fund raising, and research work were separated, defined officially, and placed under the direction of responsible officers. One of the big problems facing these officers is decision-making.

Focus on decision making takes the study of college and university administration into a broad field of behavioral science research involving the use of various theories and concepts of management, leadership and communication. John Corson's study on governance of colleges and universities (1960), while illuminating various aspects of academic governance, posed and left unanswered enough questions to occupy a generation of researchers. To be sure, some work has been done on administration. Francis Rourke and Glenn Brooks (1964), for instance, in their study, university administration referred to the "managerial revolution" - the trend toward scientific management illustrated by organized institutional research, increasing use of quantitative data for policy analysis, and use of computers for administrative purposes. But college and

university administrators themselves have remained almost untouched as objects for systematic research role perception and conflict, personality characteristics, value orientation, status-seeking behavior and identification with institution.

The resistance of administrators to serving as subjects for research might, however, be one day fully overcome. John Gould in his study of the deanship in 1964 succeeded in obtaining completed questionnaires from almost two-thirds of a sample of 268 academic deans in the fifty states. Gould's findings on the dean's relation to others in the institution are significant. In 1965, Frederick Bolman worked on the process of selection of college presidents, and also met success with questionnaires. Confidential interviews were held with more than 100 persons, among them members of governing boards, faculties, alumni, and administrative staffs. Bolman's report contains procedural suggestions on such aspects of the selection process as launching the search, the faculty's role, establishing the qualifications, and finding the man. In 1964, Bolman , in reviewing programs for training administrators which had developed in recent years, discovered that they lacked evaluation as well as coordination and cooperation.

Greater cooperation and coordination in American higher education has been urged from time to time. In 1938, the American Council of Education listed some 29 areas of cooperation. Today there are almost 100 areas. Apparently the complexity of problems facing higher education has been the main factor behind cooperation. The desire to expand educational opportunity while deepening the meaning of higher education for students has led many college administrators and teachers to decide on cooperation as a possible solution. Indeed, the chief aims of cooperation appear to be to enhance the educational program of the participating colleges and universities and to

improve the efficiency of their management there have been certain obstacles to cooperation and coordination was narrow institutionalism, defined as "the attitude of devotion and loyalty to a single school which springs from some cause other than excellence in the performance of legitimate educational functions." A second major obstacle was ignorance on the part of controlling boards, administrative officers, faculties, educational organizations, the constituency of the institutions, and the general public. Other obstacles were the influence of special interest and pressure groups, race antagonisms, politics, personal ambitions, administrative procedure, and legal barriers. In 1961, M. Chambers conducted an investigation of voluntary statewide coordination in public higher education, and made a statement of the point of view that voluntary coordination is more consistent with the nature of the collegiate institution than is statutory coordination. In his commentary on a general pattern for public higher education, T. R. McConnell (1962) considered coordination as inevitable, and James B. Conant (1964) not only approved of statewide and regional coordination, but also proposed a fifty state compact for the creation of an interstate commission to plan a nation-wide educational policy. In 1964, Logan Wilson raised a number of questions concerning form and function of American higher education and declared that resistance to organization and change is no longer tenable.

Change and direction in higher education will continue to be influenced by the interests and intentions of undergraduates, which are closely linked with the democratization of higher education, the growth of post-graduate study, and changes in the outside world. These changes have had wide implications for the organization and curriculum of higher education. They have provided the base for research on higher education. Such research, according to Martin Trow, are of three kinds - predictive, directive and

illuminative.[12] Predictive research attempts to show what will be the result from some specific educational practice or pattern. The largest component of this kind, since 1900 has been the considerable body of research that aims at developing predictors of academic achievement for the use of admissions offices. The typical problem here is to find a way to improve the correlation (or predictive power) of high school grade-point average on college performance, by introducing additional test scores. Much of the research of the Educational Testing Service has been in this direction, and its objective studies have been of great value to the development and justification of admissions policies of almost all colleges and universities.

Many colleges and universities have also become highly vulnerable to confident directives dressed up as research findings. Directive research tends to intervene directly into educational practice with statements of what ought to be done on the basis of its findings. This kind of research originated in the schools and departments of education and for some time it was limited to the elementary and secondary schools. During the early years of the present century, the gulf between the schools and colleges, and between professional education and higher learning, seemed to prevent its wide extension to higher education. Its influence has been more or less restricted by the autonomy of the college teacher who tries to resist directives. But such faculty autonomy is not universal in higher education, and directive research does find a place. Too often, however, the capacity of institutions to define and achieve their own purposes is weakened rather than strengthened by directive research.

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[12] Martin Trow, "Social Research and Educational Policy," Research in Higher Education, College Entrance Examination Board, New York, 1964, p. 53.

Unlike directive research, illuminative research does not associate policy-making with research. It embraces a greater variety of studies and is represented in the work of such otherwise dissimilar social scientists as David Riesman and James Davis, Howard Becker and Burton Clark, and Theodore Newcomb and Benson Snyder. Its objects is to explore and illuminate the nature of educational institutions and processes - to show how student characteristics are linked to organizational patterns and policies and educational consequences. Illuminative research is particularly concerned with the interaction between these and other components of education. It may start with a specific problem such as drop-out, faculty-turnover, or underachievement. In the end, however, it tries to understand these phenomena in the light of the college as a social system, having a history, an organizational structure, and a student body and faculty with distinctive characteristics and patterns of relationships. Illuminative research seeks to bridge the gap between "pure" research and "applied" research.

Research on higher education has become a field of study from which a body of knowledge is evolving. Investigators from varying disciplines, numerous institutions, state, regional and national organizations, and university centers are studying a variety of problems in a variety of ways. The main feature of the knowledge accruing from these studies appears to be the gradual evolution of a body of empirical data forming the basis for confident judgments with regard to the "knowns" and "unknowns" of college life and the consequences for students. Tremendous strides have been made since 1900, and this fact no one can deny. But a great deal still needs to be done. Indeed, the search for new knowledge has been accepted as a major challenge by many investigators including teachers interested in doing a better job, representatives of institutions anxious to evaluate the achievements of students

in relation to educational objectives, behavioral scientists concerned with the analysis of learning and change in individuals, and educators interested in specifying the conditions under which growth takes place. And all this will result in considerable change in the objectives and purposes of research on higher education in the future.

Future research on higher education should be directed towards more theory in certain areas. There is need for more theory of personality development. This has always been a felt need. In 1931, Philip E. Vernon and Gordon W. Allport, stressed the fact that a more adequate logic of personality is a prerequisite to improved measurement. In their report on the study of values, they pointed out that current methods were too exclusively empirical. Investigators as a rule seemed to be interested chiefly in the precision of their instrument. Of course there has been much progress since. A sad lack also exists for a theory of development in late adolescence. This area has to do with the determination of developmental change throughout the college years. Several studies, such as those of McConnell (1934), Florence (1947) and Bayley and Ogden (1955), have revealed that changes do take place, but precise knowledge of what determines change is greatly lacking. Perhaps the greatest need in the social sphere is for more theory pertaining to the structure and functioning of institutions in their social setting, in order that a proper knowledge of the inner workings of colleges and universities may be arrived at.

More adequate knowledge is also needed on the effects of the emergence and evolution of cooperating and coordinating systems on the autonomy and interdependence of colleges and universities. Here, there are opportunities for significant research on the ecology of governance and the dynamics of organizational change. There is also a greater need for research on college teachers and teaching. While a few excellent studies have emerged, enough

has not been done in the way of carefully planned and cumulated research to guide decisions on staffing and instructional problems. Creative contributions made by individual investigators should be supplemented by campus-wide studies and properly organized regional and national efforts. The start made in formulating theories of teaching should be continued in the years to come. Indeed, the researcher as well as the college faculty member needs comprehensive and empirically supported theories to guide his efforts. Theory and practice must advance together if research is to continue to make noteworthy contributions to higher education.

The contributions of research to higher education have been many and varied. Throughout the years improvements in curriculum have been to a large extent, the result of research findings. Recent research on physical facilities has paved the way for comprehensive planning and organization of colleges and universities. The years ahead might well see greater contributions still. Departments and schools of education might be transformed into laboratories in which the university will study its educational task.

If research must continue to serve these ends as it has done in the past, it is necessary that both faculty and administration show willingness not only to examine critical issues, but to accept facts which may be opposed to prevailing belief. Adequate finance must be available and there must be competent scholars to conduct research in major areas. Research on higher education should then see even greater development and fulfillment.

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THE

REPORTS OF RESEARCH ON HIGHER EDUCATION, 1966-67

AN ANNOTATED LIST

S. MACPHERSON PEMBERTON

ASTIN, A. W. "Research Findings on the Academic Administration Internship Program". The Educational Record, Spring, 1966, Vol. 47, No. 2, pp. 173-184.

The purpose of this report is to present and evaluate some of the major findings concerning the selection of the first group of American Council on Education Fellows who were identified for academic administration. This was the first phase of a five-year program beginning in 1964, which was designed to improve the quality of academic administration. Each of the 1,097 member institutions was asked to nominate one person from his faculty or staff. Each nominee was required to submit a letter of recommendation from his president, a complete set of undergraduate and graduate transcripts, and an application form. This study attempts to describe some of the characteristics of the candidates nominated for the first year, and to identify some of the factors that influence the final selection. The major findings reveal that compared with the typical faculty member, the typical candidate was more likely to possess a terminal degree, and to be trained in the field of education. Candidates selected as Fellows are more likely to be employed in universities than are those not selected. Near nine out of ten of the winners hold the Ph.D. degree. The typical winner also has a high salary, more publications, and a higher undergraduate grade-point average than the typical non-winner. These findings indicate that the judges place much weight on the "paper" qualifications of the candidates.

ASTIN, ALEXANDER W.; PANOS, ROBERT J.; and CREAGER, JOHN A. "A Program of Longitudinal Research on the Higher Educational System". Research Reports, American Council on Education, Vol. I, No. I, 1966.

The report points to the major objectives of this program which are to assess the impact of different college environments on the student's development and to provide a source of current, readily available descriptive information about the population of college students. The initial goal is to create and maintain a comprehensive file of longitudinal data from a representative sample of higher education institutions. This file which includes comprehensive data concerning students, faculty, environments and administrative policies, will provide the frame of reference for a continuing series of longitudinal studies of the higher education system. It can also serve as a basis for cooperation and coordination of activities among research organizations and individuals concerned with the study of higher education.

BOLAND, WALTER REED (The University of Michigan). "American Institutions of Higher Education". Dissertation Abstracts A, Vol. XXVII, Number 7, p. 2201. University Microfilms, Inc., Ann Arbor, Michigan, 1966.

The relationship between size and the degree of organizational elaboration was the subject of this study. All publicly supported, four-year degree granting colleges and universities as well as a few privately supported institutions of higher learning in the United States were served with questionnaires. Of these, 115 public and 15 private institutions returned completed questions. The three

facets of organizational specialization which were examined were organizational complexity, administrative specialization, and centralization. The results supported the general hypothesis that organizational size and organizational elaboration or specialization are monotonically related, i.e. as size increases organizational elaboration also increases. Intruding factors were not found to have any pronounced effect on this relationship, and the relationship holds no matter what facet of specialization is being considered. It was concluded that the equilibrium model of a relatively stable relationship between size and organizational elaboration provides an adequate description of most of the colleges and universities investigated; that colleges and universities of similar sizes tended to be similar in organizational specialization; and that size, organizational specialization and amount of environment substance were shown to vary together, thus providing support for the ecological notion of the interdependence of population, organization and environment.

BLACKWELL, THOMAS EDWARD, College and University Administration. New York, Center for Applied Research in Education, 1966, 116 p.

The author has presented an excellent survey of the major problems and issues involved in the administration of higher institutions of learning. He emphasizes the need for carefully planned programs for training college administrators. He also analyzes the difference between problems posed by tax supported institutions and private institutions and offers a balanced treatment for both types of institutions.

BUSWELL, GUY T.; McCONNELL, T. R.; HEISS, A. M.; and KNOELL, D. M. Training for Educational Research. Center for the Study of Higher Education, University of California, Berkeley, California, 1966, 150 pp.

This research report is the outcome of an invitation which was extended to the Center for the Study of Higher Education by the Division of Research of the United States Office of Education, to submit a proposal, under the Developmental Activities Program, for a study leading to recommendations for the improvement of educational research. The Center decided on an empirical investigation of the productivity of persons who obtained the doctorate in education, as well as analysis of factors related to the incidence of published research. A group of highly productive researchers were also interviewed concerning their educational backgrounds, the conditions they considered conducive to productivity and their recommendations for the selection and training of future research personnel. The degree of sophistication in design and analysis characteristic of recent doctoral dissertations were also examined and analyzed. The investigation revealed that certain variables are related to productivity, among them being that the most productive scholars were generally younger than the non-productive group, and that they had taken a program of liberal studies as undergraduates. Perhaps the most striking of the findings was that there was little change in the characteristics of persons who obtained the doctorate in education in 1954 and 1964 (most graduate students spent only part-time on their studies, and too few had a broad undergraduate liberal arts background).

MEDSKER, LELAND and CLARK, GEORGE. State Level Governance of California Junior Colleges. Center for Research and Development in Higher Education, University of California, Berkeley. August, 1966, 100 pp.

This is an account of a special study which was authorized by the California Coordinating Council for Higher Education. Junior college faculty, administrators and board members, state officials and legislators, comprised the respondents to questionnaires and interviews. The central point of the study revolved around the data needed for evaluating the advisability of a separate board for junior colleges.

MEDSKER, LELAND and HEISS, ANN. Report of Academic Administrative Program, September, 1966 - March, 1967. Center for Research and Development in Higher Education, University of California, Berkeley, 1967, 58 pp.

The report gives an account of a program of study which was arranged for four Mexican university academic administrators at the Center for Research and Development in Higher Education, University of California, Berkeley. Terms of contract were with the Ford Foundation. The program was devised with the purpose of providing the Mexican administrators with an opportunity for advanced study in the theory and practice of academic administration and organization in higher education in the United States. The Center organized a six-month program of course work, seminars, conferences and observations at Berkeley, as well as field trips to various other institutions in California.

PALTRIDGE, JAMES GILBERT. California's Co-ordinating Council for Higher Education. A Study of Organizational Growth and Change. Center for Research and Development in Higher Education, University of California, Berkeley, California, 1966, 193 pp. and appendices.

This study had as its purpose the analysis of the principal changes and new developments in the organizational form and operational procedures of the California Council since it began in 1960, with a view to find out the reasons for these changes and the forces causing them. The study concentrates on three principal areas of change: (1) internal changes of organizational form and working procedures and the progressive growth and development of new working mechanisms, (2) changes in the composition of membership, and (3) changes in organization and authority brought about by the delegation to the Council of administration and allocation of intrastate disbursements of funds under certain of the new federal programs for higher education.

PATTERSON, LAURA MARGUERITE (University of Texas). "Preferences in Administrative styles based on an inquiry into perceptions of the ideal structure of the university department and the ideal role of the department chairman." Dissertation Abstracts A, Vol. XXVII, Number , 304 pp. University microfilms, Inc., Ann Arbor, Michigan, 1966.

This study involved an interview of 338 professors in ninety departments at ten universities. The facts reveal that faculty members regard the ideal departmental chairman as a facilitator of their own self-determined goals, as

an information handler, and as scheduler of time and space. Faculty members generally agree that the primary aims of the large state university are (1) to develop and disseminate knowledge, (2) education of undergraduate students, (3) education of graduate students, (4) research to expand knowledge. Most respondents want the department faculty as a whole to take part in long range planning, curriculum improvement, setting course prerequisites, encouraging competent students to pursue advanced study, and choosing their future colleagues. Hierarchical units were highly preferred in accounting, management and chemical engineering. Chemistry and English professors emphasized department committees, while English and Romance language professors favored the oligarchy. Many respondents predicted a greater tendency toward centralization in decision making in the large state university.

SEIBER, S. D. and LAZARSFIELD, PAUL. The Organization of Educational Research. New York: Columbia University, Bureau of Applied Social Research. Co-operative Research Project, 1974, 1966. 113 pp.

This comprehensive study embraces (1) the value of climate arrangements for research (2) recruitment policies and joint arrangements with other substantive areas, (3) structure of research units, (4) the leadership and/or managerial role of the research director, (5) problems of service involvement and relationship to research conception, and (6) graduate programs for careers in research. Important recommendations for improving the quality of graduate programs of research, and for more effective organization of experiences and programs in research training are offered.

SELDEN, W. K. "Some observations on the governance of the American University." Teachers College Record, 1967. 68(4), 277 - 288.

This study aimed at a consideration of the American University and the impact upon its governance. The three aspects of university governance which are considered are (1) the total operations of the university, (2) the responsibilities for these operations on the part of faculties, administrations and students, and (3) the changing concept of the university as a social and political institution. There are three social factors which are seen to affect this governance: student group coalescence, checks and balances, and conception of the university and its place in society. It is difficult to develop ethical conduct and standards of behavior toward the university unless there is a clear conception and real definition of such an institution. Student group and coalescence is becoming more and more a political factor in university governance. New checks and balances are created from time to time to cope with the increasing social and political significance of the university, although such checks and balances may well threaten its autonomy in the future. The author concludes that to the three basic functions of the university - teaching, research, and public service, should be added the moral development of the student, and the university setting an example for the whole society.

ASTIN, ALEXANDER W., PANOS, ROBERT J., and CREAGER, JOHN A.
"A Program of Longitudinal Research on the Higher Educational System". Research Report American Council on Education, Vol. 1, No. 1, 1966, 42 pp.

The report points to the major objectives of the program which include an assessment of the impact of different college environments on the student's development.

A comprehensive file of longitudinal data from a representative sample of higher education institutions will be maintained. This data file will include a representative sample of institutions, comprehensive data concerning students, faculty, environments, and administrative policies.

The data files will include longitudinal records on the institutions and individuals selected and current descriptive information on the population. The primary sampling unit in this program is the institution. With certain restrictions the eligible population consists of 1,968 of the 2,281 institutions listed in the 1965-66 Education Directory.

Preliminary findings were due to be completed by the fall of 1967. Follow-up data will be included in the further analyses of the first set of data in an attempt to document relationships from the earlier analysis with later student developments. These outcomes will include such student behavior as dropping out of college, final career choice, and length of time required to obtain a degree.

BLACKBURN, ROBERT T. "General Education in the Liberal Arts Colleges".
New Dimensions in Higher Education, Number 24, April, 1967, 83 pp.
U. S. Office of Health, Education and Welfare.

This report provides a current assessment of the status general education in liberal arts college, general education being identified with the development of special cross-disciplinary courses. Professor Blackburn concludes, however, that the general education movement is no longer effective. This is due, among other things, to lack of qualified faculty committed to the movement, and the increase in numbers of students with varied characteristics.

CASSERLY, PATRICIA L. "What's Really Happening in Advanced Placement - II".
College Board Review, No. 59, pp. 16-22, Spring, 1966.

This is a report of an ETS study of practices regarding advanced placement in 63 selected colleges and universities. It shows that communications about advanced placement within colleges and between candidates and colleges are inadequate. After an evaluation of the program's impact on higher education the researchers found that admissions officers are paying special attention to advanced placement candidates and generally want more advanced placement students. College faculty feel that the program might result in the upgrading of secondary school curricula. The program was cited as an important factor in the introduction of honors programs in six institutions. Professors and administrators have judged most students in the program to be eager, disciplined and confident.

College (cont.)

COLEMAN, JAMES, and CAMPBELL.
Equality of Educational Opportunity. Washington, D. C., U. S. Office of Education, 1966. 737 pp.

This is a report of the extensive survey of the public schools carried out by the U. S. Office of Education in the fall of 1966, in order to assess the availability of equal educational opportunity to minority groups. The survey included an examination of various home, community and school factors to education. A part of the study dealt with higher education. A major finding was that differences in schools account for a relatively small part of the differences among students. Teacher quality and characteristics of the student body account for more of the variation. While white students are more highly influenced by home background than the school, Negro pupils are influenced more by differences among schools than by home background. Charts and tables are used extensively.

CREAGER, JOHN A. "Interaction between the student and the college environment". Research in Education, Number 11, November, 1967, p. 31.

A theoretical scheme was discussed for matching students to colleges through the use of a directory which could contain profiles of student characteristics and of college environmental characteristics. Each profile would carry a designated index number factored from the input of given characteristic variables. When used by the student and his counsellor, a correlation of the index number of the profile most like a profile of the student and the index number of a particular college would yield predictive output in formation relevant to achievement of such specific goals, as acquisition of a particular degree, stimulating academic atmosphere, and financial and geographic limitations. The college admissions officer could use the directory to assist in the selection of those students who might best aid in the maintenance of the acquisition of preconceived standards. The high school counsellor and the admissions officer would not use the directory to make finalized, automated personnel decisions, but as a tool to be used along with other information.

FINNISTON, H. M. "University science and industry". Political Quarterly, 1967 38 (1), 27 - 40.

The problem in this study was to find ways in which there can be greater co-operation between universities and industry. The themes which are examined include university attitudes to investment practices, the nature of science and technology degree courses, and the best methods of learning. The author makes many suggestions for bringing university and industrial practices into greater contact: (1) consumer councils of mixed university and industrial membership; (2) reduction of time spent but improving the content of first degree course; (3) extended use of AVA in university teaching; (4) deferment of post-graduate work until after a period in industry; (5) courses given in industry by universities for industry; (6) secondment of academic staff to industry to engage in collaborative research programmes; (7) director status in industry for academic staff.

GORDON, EDMUND W., and WILKERSON, DOXEY A.
Contemporary Education for the Disadvantaged: Programs and Practices, Preschool through College, p. 122-155. New York, College Entrance Examination Board, 1966.

The findings which are reported in Chapter 5 are based on the responses of 610 institutions of higher education to a six-page questionnaire designed to identify the nature and extent of compensatory programs and practices in 1964. About 37 per cent of these institutions reasonably well distributed in the several sections of the country, reported that they were conducting compensatory practices. But more than half of these institutions were assisting less than 30 disadvantaged students during the regular academic year. Some institutions, in addition to stating broad social goals, listed the achievement of a diversified student body among the objectives of their compensatory programs. In a discussion of current practices, the authors point to the variety of preparatory summer programs conducted for high school students by several institutions, stating that this is "probably the most dramatic compensatory development in higher education during recent years." In order to help disadvantaged students enter college, special recruiting efforts, modified admission criteria, and financial assistance are also being provided. Despite the increased efforts of higher education, however, more compensatory education practices must be undertaken to cope adequately with growing needs.

HAGSTROM, DAVID ALAN (University of Illinois). "College Image and Organizational Character: Differentiated perceptions of various groups in a junior college." Dissertation Abstracts A, Volume 27, Number 7, 2026-27. University Microfilms, Inc., Ann Arbor, Michigan, 1967.

The purpose of this study was to describe the College Image and Organizational Character of a particular junior college, organizational character being defined as the derived treatment of pooled perceptions of various publics. The College and University Environmental Scales and two questionnaires designed to record the various perceptions of college image were selected and administered to 610 participants comprised of faculty, members, college students, alumni, residents of the local community, high school counselors, and high school seniors. The study found that although there were differences in the ways various groups perceived the college environment, it was clear that all the reporters were describing the same place. New students were unable to anticipate the college environment. A singular public image of the college did not exist. The students described the college as a place where the individual was important and where he received much individual attention. Many students, faculty members and alumni perceived of the college as having a special quality that distinguished it from other institutions. Most of them singled out individual concern as the special quality. However, the junior college was not considered different from other colleges, and its students were not considered different from those at other colleges and universities.

HEISS, A. M. "Berkeley doctoral students appraise their academic programs". Educational Record, 1967, 48(1), 30 - 44.

The object of this study was to obtain the judgment of doctoral students on the quality and character of their graduate study experience and to identify stages of stress in the degree process. Questionnaires were posted to all 3,165 doctoral students registered at the University of California, Berkeley, 1963-64, 71% responded. One hundred students who were writing dissertations were interviewed. The findings revealed that about 83% of the students were satisfied with their programs. There was great dissatisfaction, however, among students of the physical sciences and professional schools. Many students, expressed the need for (a) a more personalized orientation and integration into the academic life of the university, more interaction with their professors and greater interdisciplinary involvement; (b) a re-examination of the rationale on which some university requirements are predicated, and a re-evaluation of the appropriateness of these requirements to specific fields of knowledge.

KASPAR, ELIZABETH ANN (Indiana University). "An Investigation of college climate among students of varying ability: comparisons within the Albion College climate and across types of college climate." Dissertation Abstracts A, Vol. XXVII, Number 7, 2071. University Microfilms, Inc., Ann Arbor, Michigan, 1967.

This study aimed at assessing discernible differences among the perceptions of the Albion College climate by students of high, middle and low ability. Student perceptions of the college climate were assessed by means of the College Characteristics Index. The subjects were a random sample of 109 sophomores, juniors and seniors at Albion College. For each student data were available on CCI responses, Scholastic Aptitude Tests, and grade point average. The results showed that most aspects of the College Climate were perceived similarly by students of varying abilities. This, perhaps, reflected the homogeneity of the student body at Albion College. Albion students of middle and low realized ability were more sensitive to the "vocational climate", than students of high realized ability. In addition, Albion students of middle, potential ability were more aware of "academic organization", i.e., a high degree of structure and regimentation in the academic environment, than students of low potential ability. Comparisons were made between the Albion College environment as perceived by average students, and Pace's five types of college environment. The Albion environment resembles Pace's in being science-oriented and highly competitive; but unlike the scientific environment the Albion climate is notable for a high degree of organization, close supervision of academic work and a relatively homogeneous student body.

KURLAND, NORMAN D. "Transition from School to College." New Dimensions, Number 17, U. S. Department of Health, Education and Welfare, 1967, 72 pp.

In this report, Dr. Kurland presents a survey of the research on those matters pertaining to the process involving the transfer of students from secondary to higher education. The report focuses on a number of problems that need further study. Among these the author notes that the identification and selection os students constitutes the largest area of research. In recent years much emphasis has been placed on disadvantaged students.

There is a lack of research on students who do not enter college immediately after graduating from high school. Financial ability, although an important factor in determining where a student goes to college, does not appear to be the decisive factor limiting college attendance. Studies are largely focused on students, very few being directed to the institutions or to the parts played by high school and college personnel in the process of transition. With the exception of Project Talent and some of the College Entrance Examination Board and National Merit Scholarship Corporation Studies, only a small number of students is studied from time to time. Relatively few studies utilize the sophisticated methods of contemporary behavioral science; but the current increased attention in educational research should change this situation.

LESSER, GERALD S. (Investigator, Harvard University) "Educational Research Training Program in Human Development". Research in Education, Number 1, November, 1966, Project Resumés, page 9.

The program, which extended from May, 1966 to August, 1967 will prepare graduate students for research and college teaching in those aspects of the behavioral sciences which are of greatest value in aiding an understanding of the educational process. It seeks to establish the closest ties between the behavioral sciences and educational practice.

SELECT COMMITTEE ON EDUCATION, University of California, Berkeley Academic Senate. Education at Berkeley. Berkeley, California, University of California, 1966, 228 pp.

This is a report of a massive study of the Berkeley campus of the University of California. In April, 1965, nine-tenths of a sample of students, selected with care to represent the entire student body agreed that they were satisfied with courses, examinations and professors. Considerable experimentation and innovation are suggested. A new degree, the Doctor of Arts, intended for people who are interested in college teaching, has been proposed. The curriculum for this degree would place less stress upon research. In general, it is urged that greater attention be given to the views of students by the faculty and administration of the university. Among the chapters are "The Berkeley Students", "The Improvement of Teaching", "Freshman Admissions", "Advising and Orientations of Students in Letters and Science", "Grading", "A Board of Educational Development", and "New Programs".

TRENT, JAMES W. "A New Look at Recruitment Policies." College Board Review, No. 58, pp. 7-11. Winter 1965 - 1966.

The author summarizes the data relating to college entrance, student expectation, and student development collected from a five part study of 10,000 students at 37 high schools in 16 communities. The data reveal that "while ability is related to educational development in college, socio-economic status, aspects of motivation, attitudinal disposition and family environment are even more related to entering and persisting in college." Large numbers of students who enter college appear to lack a realistic knowledge of what to expect, and counselors seem to offer little help in that direction. On the basis of these findings the author feels that there is a great challenge today to make college recruitment

"a phase of the developing process of education, not merely the self-contained procedure of screening candidates who happen to apply at a given college", and "to recruit students with their individual needs and personalities in mind". He concludes that help towards these ends will come from the efforts of Astin and Pace to develop institutional profiles which will aid counselors and educators in their work in this regard.

DAVIS, ELTON CHARLES (University of Southern California).
"A creative curricular and evaluative model prepared for college level remedial programs." Dissertation Abstracts A, Vol. XXVII, No. 6, pp. 1701-1702. University Microfilms, Inc., Ann Arbor, Michigan, 1966.

The objectives of this study were (1) to define a course of study containing a theoretically unified set of objectives providing an opportunity for the student to develop his abilities to the level required for college; (2) to involve the college in an institutional effort to produce valued developments in curriculum aimed toward the solution of a common problem within junior colleges; (3) to get students involved in creative and remedial activities so that they can be let to clarify and re-evaluate educational and vocational goals. The course of study was developed and used in an experimental and control group study at Pasadena City College. The findings revealed that according to essay ratings and evaluative statements by teachers, students committed to educational-vocational goals showed statistically significant improvement in the experimental group as compared with the control group. It was found that the experimental group was more flexible in experimenting with possible educational-vocational goals by a 4.1 ratio. From the results the conclusion is drawn that a methods course can free teachers of remedial courses from the present practice of re-inforcing previously acquired poor study habits and permit the primary objective to be the diagnosis and remediation of the learning deficiencies of students.

GENTRY, E. LINNELL (George Peabody College for Teachers) "An analysis of secondary-school social studies methods courses in Tennessee colleges and universities." Dissertation Abstracts A, Vol. XXVII, Number 5, p. 1280. University Microfilms, Inc., Ann Arbor, Michigan, 1966.

This is an analysis of the secondary school social studies methods courses in Tennessee colleges and universities. The methods and procedures included an exploration of the literature in social studies education, and faculty and student questionnaires based on criteria found in twelve books published after 1951, and which were written for possible use as secondary-school social studies text books. The results of an analysis of interviews, correspondence, telephone, and faculty and student questionnaire data indicated that the majority of the twenty-five instructors who taught the courses possessed competence in education, and that social science or social science discipline was the major or minor for 88 per cent and 84 per cent of the baccalaureate and master's degrees, respectively. It was also found that 76 percent of the instructors had taught in secondary schools and 60 per cent had taught secondary school social studies. The twenty-five instructors met professional education and social studies requirements for teaching social studies in secondary schools. These instructors agreed that all of the fifteen major topics, 136 of the 142 sub-topics, and ten of the eleven social studies subjects listed under the topic, "articulation with and emphasis on teaching various social studies courses in secondary schools", were contained in the courses.

CAMPBELL, ROBERT and SIEGEL, BARRY N. "A model for the demand for higher education in the United States, 1919-1964". Research in Education, Number 11, November, 1967, p. 3.

This study is based on the fact that college enrollment represents the purchase of both a producer and consumer variable, and is an act of investment. The risks of investment appear in two forms (1) the risk of failure to complete the education, (2) the risk that education, even though completed will not yield the expected income return. Statistical demand analysis, emphasizing the influence of relative prices and real income upon the demand for a commodity, was used to develop a model of the demand for higher education. Only those regarded as potential investors, graduate students and students enrolled in two-year institutions were excluded from the study. From the analyses made, the principles that limit educational demand below the total of those eligible to enroll were deduced to be (1) those individuals whose expected rate of return over cost is zero, or below, will have a zero enrollment demand, and (2) enrollment demand is diminished by exclusion of those who must rely on loans to enroll. The model derived as a measure of demand was that the ratio of enrollees to eligibles for a given year is a function of the real disposable income per household and of the average real tuition in that year.

KOENIG, HERMAN E. and others. A Systems Approach to Higher Education - A Comprehensive Report of Progress. Division of Engineering Research, National Science Foundation Project C-396, Interim Report No. 3 East Lansing, Michigan. Michigan State University, 1966.

The report gives a description of a project to develop a dynamic systems model of a university. The model is stated mathematically, and fully represents the flow of students and other resources needed to sustain the institution. Costs are considered as only one part of the total system. The investigators argued that the financial dimension of the institution is not independent of other variables. This study should have an impact on institutional planning by its offer of a cost analysis model which can be adapted to the particular needs of each institution.

SWANSON, JOHN E., ARDEN, WESLEY, and HILL, HOMER E. Financial Analysis of Current Operations of Colleges and Universities. Cooperative Research Project No. 1853, Institute of Public Administration. Ann Arbor, Michigan. University of Michigan, 1966.

This report represents a recent attempt to provide a theoretical basis for a systematic approach to financial operations in higher education. Cost analysis procedures are based upon the examination of the total financial pattern of a post-secondary institution. The investigators presented a single model for analyzing institutional costs.

KUNKEL, PAUL ERNEST (University of Idaho). "Evaluative criteria for college instructional facilities." Dissertation Abstracts A, Vol. XXVII, No. 2, pp. 354-355. University Microfilms, Inc., Ann Arbor, Michigan, 1966.

The object of this study was to gather and organize definitive criteria suggested for the rating of existing instructional facilities at the college level. It also includes an analysis of supporting data which must be available for a plant evaluation project (e.g., enrollment analyses, plant inventories, schedules and calendars, and utilization studies). There was a two-fold approach to this study. Firstly, there was a study of related literature to extract those criteria or standards which were spelled out in specific terms. Secondly, a tour was made of colleges and universities of the Pacific Northwest and interviews were conducted with administrative officials and others. The findings revealed that both within and between institutions wide variations of purposes, needs and facilities exist, and that consequently it should not be expected that any single set of standards would be applicable. The instructional environment, regardless of the activity, is considered in relation to its spatial, visual, acoustical and comfort factors. Standards for specialized facilities need to be carefully related to the local situation. In addition, the same kinds of efficiency cannot at this time be demanded from instructional facilities as are expected from modern commerce and industries. More effective teaching as well as improved utilization within existing utilities should be sought, since plant expansion to meet desired needs is still distant.

ROWE, HAROLD GARRIS, JR. (The University of Nebraska Teachers College) "The expansion of facilities for Higher Education as a result of the Higher Education Facilities Act of 1963". Dissertation Abstracts A, Vol. XXVII, Number 10, p. 3277. University Microfilms, Inc. Ann Arbor, Michigan, 1967.

The study sought to determine the extent to which the Higher Education Facilities Act of 1963 had contributed to the expansion of higher education facilities during 1965, the first year of its operation. Data were gathered through the U. S. Office of Education, personal interviews with representatives of the Congressional Sub-Committee that considered the Act and personal interviews with officials from fourteen different colleges and universities. Institutions granted funds under Titles I and II of the Act were identified according to name, types of facilities constructed, amounts received, total development cost of projects, and total square footage of certain projects. The following conclusions were arrived at. The Congress of the United States recognized the provision of academic facilities as a major area of concern. The Act is less significant in terms of its percentage of monetary contribution to the overall long range building programs of large institutions than it is to smaller institutions. The Act is more significant in terms of immediate and long range realization of building needs to smaller institutions and church supported institutions than it is to larger, publicly supported institutions. The intended benefits of the Act may be cancelled out for state supported institutions if state legislatures rely on it to displace state appropriations.

SOUTHERLAND, ARTHUR RAY (East Texas State University) "Essentials of internal design and arrangement of college and university music buildings." Dissertation Abstracts A, Vol. XXVII, Number 8, pp. 2293-2294. University Microfilms, Inc., Ann Arbor, Michigan, 1966.

This study aimed to discover, evaluate and rank pertinent essentials of internal design and arrangement for college and university music buildings. The study was limited to accredited music departments, having at least sixty per cent of their graduates entering the teaching field, with seventy or more music majors and minors enrolled and having a building completed during 1955 to 1965. Each of 386 accredited institutions received an inquiry to ascertain if their departments and facilities fell within the prescribed limits. The questionnaires were then submitted to a panel of judges composed of four members of the graduate faculty of the music department of East Texas State University for the establishment of validity. Five buildings were visited and studied. Considerable variety was noted among the college and university music buildings. Faculty opinions played a great part in determining which buildings were essential, desirable or undesirable. Those items and features found in at least half the buildings studied were considered essential if they were favored or not refuted by the faculty. Items and features found in less than a majority of the buildings but which were favored by the faculty were considered desirable. Those items and features found in less than a majority of the buildings, and toward which the faculty were either only mildly tolerant or opposed were deemed undesirable.

CARTTER, ALLAN M. An Assessment of Quality in Graduate Education, Washington, D. C., American Council on Education, 1966, 131 pp.

This is an account of a comparative study of graduate departments in 29 disciplines in 106 institutions. Opinions of three major groups were sought; (1) department chairmen, (2) distinguished scholars, and (3) knowledgeable junior scholars who had completed their formal training not more than ten years earlier. The study aimed at a description of the quality of the graduate faculty in their field, the effectiveness of the doctoral program and anticipated changes in the relative positions of departments.

HARGENS, LOWELL L., and HAGSTROM, WARREN O. (University of Wisconsin) "Sponsored and Contest Mobility of American Academic Scientists." Sociology of Education, Winter, 1967, Volume 40, Number 1, 24 - 38.

In this analysis of data for 576 natural scientists currently faculty in U. S. graduate institutions, it is shown that the prestige of the institution where a scientist received his doctorate is related to the prestige of his present affiliation even if the effects of his productivity are controlled. The relative effects of prestige of doctoral institution and productivity vary between different levels of the academic stratification system and between different stages in the scientific career.

SCHUFLETOWSKI, FRANK WALTER (Washington State University) "The development of the college professor's image in the United States from 1946 - 1964." Dissertation Abstracts A, Vol. XXVII, Number 2, p. 376. University Microfilms, Inc., Ann Arbor, Michigan, 1966.

This study sought to determine the changing public and professional periodicals were analyzed. Usable data were separated into two categories of characteristics: those positive and those negative to the professor's image. Fifteen professors at Washington State University, selected at random, were interviewed to determine the current image of the professor as conceived by the profession itself. The findings indicated that positive characteristics consistently appearing described the professor as a scholar-thinker who had a satisfying life and held higher responsibilities than the common man. He was pictured as being in demand by others, individualistic, and dedicated or devoted. The most negative characteristic concerned the professor's deplorable economic straits. He was accused for lack of skill or enthusiasm in teaching. His failure to take direct action and his inclinations to be odd were also noted. Between 1961 and 1964 the economic status of the professor improved. The study concluded that the current image of the professor as revealed in the statements of the interviewees and the present image appearing in the literature were quite similar. There is evidence that the professor's image is improving. There is need for improvement, however, in the student-teacher relationship as well as in the direction of skill, interest, and enthusiasm in the teaching functions.

ACADEMIC SENATE, Berkeley Division Select Committee on Education. Education at Berkeley. Edited by Charles Muscatine. Report of the Select Committee on Education, University of California, Berkeley, 1966, 228 pp.

The report gave an account of the Select Committee's year-long study to find ways in which advancement can be made in the traditions of human learning and scientific inquiry under the challenging conditions of size and scale confronting the university community. The diversity in Berkeley student characteristics is emphasized and arguments for a pluralistic approach to higher education are presented in the first section of the report. The impact of large groups of graduate students and the importance of research constitute the central theme of the report. Among the many recommendations for educational improvement and reform is a proposed new degree, Doctor of Arts, which would substitute a "learned" paper on a research project for the dissertation.

ASTIN, Alexander W., PANOS, Robert J., and CRAEGER, John A. "National Norms for Entering College Freshmen, Fall, 1966." Research Reports, American Council on Education, Vol. 2, No. 1, 1967, 25 pp., Appendix 26 pp.

The report presents the national normative data on the characteristics of the entering freshmen of 1966. These norms were compiled in connection with a program of longitudinal research recently undertaken by the Office of Research of the American Council of Education. Comparative data on the characteristics of students entering different types of institutions are also presented. The fall 1966 survey embraced 254,480 students at 307 institutions. The data provided by these students together with follow-up data in years to come, will be used in the evaluation of changes in students' attitudes, behavior as well as their educational and career plans.

Some 254,480 students were surveyed at 307 institutions during the Fall of 1966. The participating institutions were asked to administer a Student Information form to each new student being registered full-time. Institutional representatives were asked to indicate the manner of administering the form and to report any unusual circumstances encountered while the data were collected. They were also requested to note the number of first-time, full-time students who did not complete the form.

The overall purposes of the longitudinal program are "to evaluate the impact of the college environment on the student's development and to provide a source of current, readable information about the population of college students."

AXTELL, Jr., John Dayton (University of California, Berkeley). "Religious Attitudes of College Students of High Academic Aptitudes." Dissertation Abstracts A, Vol. XXVII, Number 8, p. 2414. University Microfilms, Inc., Ann Arbor, Michigan, 1967.

This study was concerned with the religious attitudes of 409 Protestant National Merit Scholarship winners and runners-up who entered college in 1956. A list of comprehensive but specific independent variables was developed in order

to try to include the effects of many of the important factors related to change in value on religion. These independent variables were sex, thinking introversion, the intellectual meaningfulness of the student's religion to him, and identification with religious groups. Intellectual meaningfulness as well as change in value on religion was measured by Guttman scales developed for this study. Thinking introversion was measured by a scale developed by Catherine Evans and T. R. McConnell. Identification was measured by a behavioral index developed for this study. Four hypotheses were tested among them being that when the other variables are controlled sex difference is not related to change in value on religion over the college span. Another hypothesis stated that when the other variables are controlled, there is a relation between intellectual meaningfulness of religion as assessed at the end of college, and change in value on religion over the college years. This hypothesis was proved. The study revealed that over one half of the respondents increased in the value placed on religion, fifteen percent did not change and thirty-three percent decreased in the value placed on religion.

BLOSSOM, Herbert Henry (University of California, Berkeley). "Some Factors Influencing high school graduates attendance at different types of colleges." Dissertation Abstracts, 1966, 27 (2-A), 383-384.

The purpose of this study was to examine the relationships between selected student characteristics and a high school graduate's choice of, and attendance at, various types of institutions of higher learning. This is primarily a descriptive survey of an area sample involving 1320 high school graduates from the Sacramento City Unified School District in the spring of 1960. Questionnaires were used to gather information about the student and his plans. Among the factors included were academic ability, socio-economic level, sex, motivation, family size, parent characteristics, race, religion, geographical location, and vocational goals. It was found that there was no significant relation between college attendance and the importance to parents of the students attendance at college, race, or religion for the group of students selected. It was also noted that despite considerable overlapping of student characteristics within and between groups, there was a possibility of identifying a statistical similarity among students who attended each kind of college or university. The conclusion is that, within the limited scope of this study, a general congruency exists between college and student, but that greater study of many other contributing factors is necessary before a final conclusion can be arrived at.

BLUMENFIELD, W. S. "Some Characteristics of Finalists in the 1966 National Achievement Scholarship Program." NMSC Research Reports, 1966, Vol. 2., No. 4.

1,029 finalists completed a 94-item research questionnaire as a part of the Scholar selection process of the 1966 National Achievement Scholarship Program. The results revealed that the finalists seemed to be high aspiring, high grade achievers, academically oriented, professional occupation's oriented, high extra-curricula achievers, active, interesting, and talented young people. A follow-up study of their progress and performance was planned for the summer of 1967.

CRONBACK, Lee J. (Investigator, Stanford University.) "Research Training Program Development," Research in Education, No. 1, 1966, Project Resumes, p. 20. U.S. Department of Health, Education and Welfare, Washington, D.C.

This project which began on June 13, 1966 was completed on August 31, 1967. It was undertaken to provide for comprehensive graduate research training in educational psychology, curriculum research, school and school system organization and educational mathematical applications. Several new staff members were recruited and selected to be trained on the predoctoral level. It was hoped that these would prove strong contributors to the research training program and the university faculty. The new full-time positions will be distributed over the five-year program period.

CUNNINGHAM, Darold (Indiana University). "Test-taking attitudes among university and high school students." Dissertation Abstracts A, Vol. XXVII, Number 4, 1651. University Microfilms, Inc., Ann Arbor, Michigan, 1967.

The purpose of this study was to determine the degree of resistance toward taking standardized tests among university undergraduates and high school seniors planning to attend college. The relationship of test-taking to class-standing, socio-economic status, sex parents' educational level, and comparative high school differences was also to be examined. The population consisted of a random sample group of 431 Indiana University undergraduates and 289 high school seniors. The necessary information was obtained through a questionnaire and an attitude scale was developed to measure the degree of test resistance. A significant number of students showed evidence of test resistance in general. Approximately 36 per cent of the students tested showed resistance to testing significantly above the mean of the total group. It was concluded that female students in general are more test resistant than males. Further findings were related to the size of the high schools attended. Students who attended medium sized high schools demonstrated greater test resistance than students from large high schools. No significant difference was found for the total group with regard to socio-economic status. It was also found that there were significant differences in test resistance among students of different achievement levels. The lowest achievers were the most test resistant.

DENHAM, Edward Chapline (University of Arkansas). "The Prediction of College Success with Biographical Data and Self-ratings." Dissertation Abstracts A, Vol. XXVII, Number 3, 599. University Microfilms, Inc., Ann Arbor, Michigan, 1966.

The purpose of this study was to investigate the prediction of success in the College of Education, University of Arkansas, through the use of biographical data and self-ratings given by students in reply to an 85-item multiple choice type questionnaire called the Personal Data Inventory. Success in college was measured by grade point average and by the number of college hours completed. The sample consisted of 139 freshmen, male and female who entered the College of Education in 1961. 150 other freshmen who entered the College of Education in 1960 were used to check the validity generalization of the findings. The School and College Ability Test was also used to predict college success, except with second population.

The Personal Data Inventory scores alone accounted for 46.2 per cent of the predictable variance of GPA as compared to 17.9 per cent accounted for by SCAT. The PDI scores alone also accounted for 36.8 per cent of the predictable variance of hours completed as compared to 0.5 per cent accounted for by SCAT. In the population considered, personal data and self-rating scores of 33 items of a questionnaire, as well as a composite of these scores, accounted for a larger percentage of college success as measured by GPA than did SCAT total percentile scores. The personal data and self-rating scores, as well as a composite of these scores, were found significantly related to the prediction of college success as measured by college hours completed.

DONNALLEY, Mary Jane Metcalf (University of Virginia). "A study of the factors which influence women college students to withdraw before completing their degree requirements." Dissertation Abstracts A, Vol. XXVII, Number 8, p. 2388. University Microfilms, Inc., Ann Arbor, Michigan, 1967.

The purpose of this study was to find out the reasons why four hundred and forty-two students enrolled at Mary Baldwin College during 1956-1960 failed to graduate. The study also sought to discover ways in which certain changes may come about at Mary Baldwin to hold its students. A questionnaire was developed for probing all possible reasons why students withdraw from college. This constituted the chief source of data. Other data were gathered from the administrative offices of the colleges. The findings revealed that more than half of the two hundred and ninety three students who replied to the questionnaire had transferred to another college where they completed their degrees. The two most important reasons why students withdrew from Mary Baldwin were marital plans and academic problems. The most prevalent reason for withdrawal indicated in the free response question at the end of the questionnaire was to attend a large, co-educational state university which offered a broader selection of courses. The study concludes that Mary Baldwin should carefully examine its social and recreational programs as well as the facilities for co-educational activities. The failure of capable students is largely due to lack of motivation. Definite steps should be taken to help the girls to be more realistic about the world they live in.

GORDON, Edmund W. "The Higher Education of the Disadvantaged." New Dimensions in Higher Education, Number 28, April, 1967, 85 pp. U.S. Department of Health, Education and Welfare.

In this literature research review the author concludes that some progress is being made to extend higher education to young people from disadvantaged backgrounds. He points out, however, that there is need for new programs of student aid, student loans, talent search, which should result in a large increase in the number of such youth admitted to college.

HARDESTY, Reuben Bowen (Columbia University). "A study of the problem of attrition in selected types of institutions of higher education with special emphasis upon solution." Dissertation Abstracts A, Vol. XXVII, Number 2, 629-630. University Microfilms, Inc., Ann Arbor, Michigan, 1966.

This study focuses on practices designed to reduce attrition or the act of

leaving a college before graduation. The student, administration, teaching staff, board, parent or society may contribute to attrition. A questionnaire was sent to each of 102 four-year colleges and universities, excluding denominational institutions, with membership in the Middle States Association of Colleges. These institutions reported practices in varying degrees of magnitude and effectiveness for reducing attrition. Querries and conferences were conducted involving small numbers of faculty, students, board members, parents, and citizens. Ten institutions were visited. The major finding concludes that it is necessary for both public and private institutions to begin keeping complete and accurate records of drop-outs and transfers in order that future attrition studies be more meaningful. This can be facilitated through greater expenditure in financing staff and equipment for the registrar's office as well as for student personnel services. Seven major recommendations are made for solving the attrition problem. Among these are decentralization of massive institutions, divisional organization to promote the general welfare of all regardless of any departmental selfish interest, quarter calendar to replace the traditional semester calendar, and unions of colleges to experiment in improving teaching techniques, curriculum etc. There must be no lowering of academic standards.

HEIST, Paul, HENRY, Mildred, and CHURCHILL, Ruth. Preliminary Report on the Entering Students of the Fall Term, 1966. Center for Research and Development in Higher Education, University of California, Berkeley, 1967.

The report is given on students at Sarah Lawrence College, Hofstra, Shimer College, Stephens College, and Northeastern Illinois State. Each report is divided into five parts, Part I being the Introduction. Part II describes the students' families and high school backgrounds as well as their aspirations and expectations from data gathered through student questionnaires. Part III includes the questionnaire data discussed in Part II. Part IV utilizes the OPI data to present profiles of personality characteristics of the entering students. From these data estimates will be made of the degrees of creativity and intellectual potential within a student body, of the extent of student autonomy and spontaneity and the levels of cultural sophistication and emotional stability.

HOFFMAN, L. R. and MAIER, N. R. F. "Social factors influencing problem-solving in women." Journal of Personality and Social Psychology, 1966, 4(4), 382-390.

This study sought to discover why problem-solving performance in women is poorer than that of men. It examined experimentally some conditions under which women would be motivated to improve performance as compared to standard experimental conditions, i.e., a male experimenter administering problems in masculine terms. The experimental variables which were tested were (a) motivation by appealing to nurturant and affiliative motives (b) the sex of the experimenter (c) masculine vs. feminine versions of problems. The subjects were 135 male and 367 female American students in a college introductory course. The results were rather complicated. Women performed more successfully on a masculine problem-solving activity when motivated by a male experimenter than by a female experimenter. It seems that women's nuturant and affiliative motives were aroused by the male experimenter which in turn reduced the conflict between being feminine and the masculine problem-solving activity. Women's inferior performance on masculine

problems was found, therefore to be more a function of inappropriate motivation than lack of ability. But there was no evidence of social factors in female problem solving revealed in the results. It was concluded that several variables influence women's problem-solving performance. Only a few of these variables operate for a given problem situation, however.

JOHNSON, Kenneth Williard (University of California, Berkeley). "An Investigation into correlates of increases in impulse expression among college students at selected institutions." Dissertation Abstracts A, Vol. XXVII, Number 2, 677. University Microfilms, Inc., Ann Arbor, Michigan, 1966.

The central question which this project investigated was how those students who changed significantly on Impulse Expression scale of the Omnibus Personality Inventory differed from those who did not change on various dimensions which are particularly related to the academic aspects of college. The investigation sought to discover whether there was a greater involvement in the academic pursuit of students whose impulse expression scores increased over the college years than of those students who showed no increase in impulse expression scores. The total sample of 208 male students from Antioch, Reed and Swarthmore colleges were divided into two groups: a Change group of 76 whose Impulse Expression scores had increased at least one sigma, and a Non-Change group of 132 whose scores had not increased at least one sigma during the college years. The two groups were then compared as level of intelligence, socio-economic background, personality characteristics relating to intellectuality, college major, involvement, and academic achievement. The results indicate that increases in Impulse Expression scores over the college years correlate closely with the development of personality characteristics relating to intellectuality as well as to other factors which tend to influence the course of the student's college career. The conclusion is drawn that students whose Impulse Expression scores increase significantly, experience greater depths of intellectual interests. The change group chose to major in the humanities instead of science or mathematics. They showed no tendency for specialization.

KAGAN, David (University of California, Los Angeles). "Role Expectations of Doctoral Candidates and Their Faculty Sponsors." Dissertation Abstracts A, Vol. XXVII, Number 4, 1628. University Microfilms, Inc., Ann Arbor, Michigan, 1966.

The purpose of this study was to examine the relationship between the doctoral candidate and his sponsor. A Doctoral Sponsor and Candidate Role Questionnaire was designed to measure the beliefs individuals hold about the preferred objectives and methods of the doctoral program and the kind of relationship that should exist between the candidate and his sponsor. At least three pertinent facts are revealed by the data collected. First, certain personality variables rather than academic ability, are very important in determining which candidates will complete the degree requirements. Second, professors communicate divergent expectations of sponsor and candidate roles to their students. Third, both professors and candidates may verbalize a set of preferred behaviors regarding individuals who occupy the positions of sponsor and candidate, but in practice, adhere to a quite different set of behaviors. From the data collected the conclusion is drawn that the drop-out rate

among doctoral candidates is unlikely to be reduced significantly by more rigorous admission standards, or by selecting students with desired personality traits. It is desirable, therefore, that there be a system of selection and guidance which takes into account the abilities, personality traits, and expectations of both faculty members and students and placing each student under a sponsor with whom he will be compatible.

KURLAND, Norman D. "Transition from School to College." New Dimensions in Higher Education, Number 17, April, 1967. U. S. Office of Health, Education and Welfare.

The report surveys research on those matters which bear upon the process by which students go from secondary to higher education. It also considers the extent to which these processes affect students and institutions. The report discusses a number of problems that need further study, among them being that while financial ability does not seem to be the decisive factor limiting college attendance, it may be an important factor in determining which college a student attends.

LINN, Robert L. and DAVID, Junius A. Correlates of Academic Performance of Community College Students in Career of Transfer Programs: A Pilot Study. College Entrance Examination Board, Research and Development Report No. 2. Princeton, N. J., Educational Testing Service, 1966. 39 pp.

The authors report the procedures and results of a study they conducted in an effort to test the usefulness of certain predictive techniques in the context of the college community. The sample of students included all full-time freshmen entering Bronx Community College in the Fall of 1965. The "traditional" predictors, SAT scores and high school grade averages were obtained together with data from promising instruments such as the Background and Experience Questionnaire, the Experimental Comparative Prediction Battery, the Academic Interest Measure, and the Personal Values Inventory. When "traditional" predictors were correlated with first-semester grade-point averages, they were found to have moderate validity for students in occupational training, but zero validity for students in the academic transfer program. The authors suggest that this apparent paradox may be the result of a selective admission policy, and the seeming self-selection of students with superior records who enter a four-year unit of the City University.

MARASCUILO, L. A. and GILL, G. "Measurable differences between successful and unsuccessful doctoral students in education." California Journal of Educational Research, 1967, 18(2), 65-70.

The study sought to discover what differences exist between the successful and unsuccessful doctoral students in education. The subjects were 106 successful and 64 unsuccessful doctoral condidates in education at the University of California, Berkeley. These students began their programs since 1954 and were expected to complete them by 1965. The undergraduate Grade Point Average, scores on the Miller Analogy Test and various personal characteristics were used to measure differences

between the two groups. Neither the scores on the Miller Analogy Test nor the undergraduate Grade Point Average distinguished adequately between successful and unsuccessful students. The factors accounting for the difference between the two groups seems to be more a matter of dedication or commitment to academic work, length of time between BA and beginning of graduate work and full-time status when beginning the doctorate.

McINTOSH, Dean Keith (University of California, Los Angeles). "Correlates of self concept in gifted students." Dissertation Abstracts A, Vol. XXVII, Number 9, p. 2403. University Microfilms, Inc., Ann Arbor, Michigan, 1967.

This was an investigation of the self concept of gifted, honors and average college students. Self concept was measured by the Bills Index of Adjustment and Values which comprises the following scores. Self Description, Acceptance-of-Self, Ideal Self, Discrepancy Score, "Other"Self Description, "Other" Acceptance-of-Self, "Other" Self Ideal, and "Other" Discrepancy Score. The variables investigated include socio-economic background, parent education, parent occupation, intelligence, academic status, etc. The hypotheses were that the gifted students would have significantly higher self concepts than either the honors or the average groups, and that self concepts of the honors students would be significantly higher than those of the average students. A questionnaire and the self concept instrument were used to gather data over a one-week period. The subjects were second semester freshmen, first and second semester sophomore, and first semester juniors in the College of Letters and Science of a large urban university. Scores obtained from the self-concept measure, and the questionnaire data were analyzed using the t-tests, and correlational methods. The gifted students did not have significantly higher self concepts than the honors or average students, nor did the honors have significantly higher self concepts than the average. Only partial support could be given the hypotheses that differences in self concept among the three groups were related to the variables presented, and the hypothesis that the self concept of the gifted would be affected by these variables.

MOCK, Kathleen. Freshmen Entering the University of California, Fall, 1966. Center for Research and Development in Higher Education, University of California, Berkeley, May, 1967, 20 pp.

Data collected by the American Council on Education are interpreted. During the fall of 1966, the Council collected data on entering freshmen at 251 colleges and universities in the United States. The questionnaires dealt with the backgrounds, personality traits, college aspirations, and past activities of the students, as well as the images the students held of the schools they were entering.

MOCK, Kathleen, YONGE, George, and HEIST, Paul. An Exploratory Investigation of Selected Student Types at Three University of California Campuses. Center for Research and Development in Higher Education. University of California, Berkeley, October, 1966, 38 pp.

A preliminary report, this presentation was prepared as a working paper for a conference with representatives from the three campuses included in the project.

The campuses were those of Davis, Los Angeles and Santa Barbara. The report is concerned only with a first-year assessment of the samples involved in the two-year project. Most of the data were drawn from questionnaires which sought information on background experiences, aspirations and attitudes of the students among other things. The main questions of the study are not answered; rather the report describes the student bodies on each campus and differentiates them within and among campuses.

NELSON, Donald Theodore (Indiana University). "The impact of foreign undergraduate students upon American undergraduate students." Dissertation Abstracts A, Vol. XXVII, Number 7, 2011. University Microfilms, Inc., Ann Arbor, Michigan, 1967.

The object of this study was to analyze and describe the impact of foreign undergraduate students upon a group of American undergraduate students with whom they were closely associated. There was also a control group of American undergraduate students who had little contact with foreign undergraduate students for comparison. Information was obtained from personal data records, personality inventories, interview data, and a foreign student questionnaire embracing age, sex, hometown, marital status, place of campus residence, college activities, military service experience, field of study, and class standing. The chi-test found significant differences between the American student groups on age and participation in college activities. Close friends of foreign students were older and participated more in college activities. Close male friends of foreign students had a stronger need for succorance, while close female friends had less need for heterosexuality. Religion was stressed by close friends of foreign students. The foreign student questionnaire indicated that foreign students from Africa, the British Caribbean, and South America show more interest in cross-cultural interaction than the students from Asia and Oceania, Europe and the Middle East. The positive impact of foreign undergraduate students upon American undergraduate students was statistically validated.

RAND, LEONARD PETER (The University of Iowa). "A study of the relationship between the matching of student and institutional characteristics and college choice satisfaction." Dissertation Abstracts A, Vol. XXVII, Number 9, 2832. University Microfilms, Inc., Ann Arbor, Michigan, 1967.

This study focussed attention on the relationship between student satisfaction with his choice of college and the extent to which certain of his own characteristics match those of others at his college. The study also investigated which matched student and institutional characteristics are more important than others in predicting and discriminating the degree of student satisfaction. In the spring of 1964, 7,257 students at 24 colleges were tested with the American College Survey. Personality and interest, scholastic potential, and sub-cultural orientation were selected as variables. The results indicate among other things that in four instances, students who were above average on the relevant characteristics had the highest percentage of very satisfied students. Of three groups of students who were above average, below average, or similar to the average students at a particular college, on a

particular variable, relatively more satisfied students were found in the similar in only 4 of 18 cases where significant relationships existed. A finding which seems related to the sex role expectations of our culture is that university males with above-average scores on masculine scales were inclined to be more satisfied with their choice of a college. The study concluded that matching which is relevant to satisfaction seems to depend on the type of institution, the sex of the student and the particular matching variable.

RENETZY, Alvin (University of Southern California) "All but the dissertation: A study of the factors of attrition in graduate education." Dissertation Abstracts A, Vol. XXVII, Number 8, 2451. University Microfilms, Inc. Ann Arbor, Michigan 1967.

This study was concerned with the problem of attrition among ABD's, i.e., those students who, upon completing all the requirements for the doctoral degree except the dissertation, do not subsequently complete the research and receive the degree. Intellectual ability, motivation, accomodation, attitudinal orientation and non-academic status were given great consideration. The sample consisted of an experimental group of one hundred ABD's and a control group of one hundred SDG's (individuals who completed the dissertation and obtained the doctorate within the allotted three year period). Subsequently, a questionnaire was developed, an interview schedule was designed and students were examined in an effort to determine whether there was any relationship between attrition and each of the five categories mentioned above. The findings revealed that ABD's exhibit significantly less ability to crystalize a dissertation topic early in the graduate school career and to stay with this topic once crystalized. ABD's are less motivated by an employment situation requiring the doctorate; they do not receive a great deal of family encouragement, and are dissatisfied with the graduate school experience. The findings led to the conclusions that the degree of accommodation achieved by the ABD's is significantly associated with attrition; the attitudinal orientation held by the ABD's is significantly associated with attrition; selected non-academic statuses are significantly predictive of attrition ABD's.

SEWELL, William H., and SHAH, Vimal P. (University of Wisconsin) "Socio-economic Status, Intelligence, and the Attainment of Higher Education." Sociology of Education, Winter, 1967, Volume 40, Number 1, 1-23.

In this study of a randomly selected sample of Wisconsin high school seniors, the relative influences of socio-economic status and measured intelligence are examined at successive stages in higher education. The investigation revealed that both socio-economic status and intelligence have direct effects on planning to attend college, on college attendance and graduation, as well as indirect effects on college plans and college attendance. With females, however, the relative effects of socio-economic status are more pronounced than the effects of intelligence. On the whole, intelligence seems more important than socio-economic status for both sexes, in determining who eventually graduates from college.

SHAFFER, ROBERT H. and DOWLING, LEO R. Foreign Students and Their American Student Friends. Indiana University, Bloomington, Indiana, 1966, 368 pp.

The object of this study was to defind the problem of the cultural interaction between foreign and American students and to ascertain some of its distinguishing characteristics on a large, typical, mid-western university. The inquiry was approached by an analysis of the personal data characteristics, personality inventories scores, and personal interview responses of a group of 554 American student friends of foreign students at Indiana University. The specific objectives included ascertaining the origin and development of the relationships between foreign and American students and determining the American student's perceptions of foreign students.

Several conclusions were arrived at, among them being that the initial contacts between foreign and American students arise from informal and spontaneous meetings and academic interests rather than from formally organized campus activities.

SHEPPARD, D. Scientists and Engineers and Their Choic of Jobs. HMSO (Department of Education and Science), 1966, 129 pp.

The study aimed at an examination of the types of jobs chosen by science and technology graduates. Changes in jobs, the sources of information used for obtaining jobs, and the reasons for job preferences were also considered. In 1962, a postal questionnaire was issued to all male graduates of British universities with First or Second Class honours in science and technology in the years 1956-59 inclusive. Eighty-four per cent of the 12,942 students responded. Interviews were made of 1,750 students in six selected occupations. The results showed that 52% of the respondents had registered for further study. Seventy per cent of the remainder had succeeded in finding the right job. Although the type of degree affects the choice of job to a considerable degree, the class of degree is also very important; on changing his job, the graduate is likely to take another job within the same type of employment. Personal sources are utilized more and mass media less by those taking up their first job than by those who change to a new job later in their career. The trend was toward research rather than teaching among those who were not taking further full-time training. It would seem that social aspects as well as aspects which apply to jobs of all kinds (security, pay and conditions) are not nearly as important as specific characteristics of the work itself.

SOLKOFF, N. and MARKOWITZ, J. "Personality characteristics of first-year medical and law students." Journal of Medical Education, 1967, 42, 195 - 200.

The study set out to examine ways in which medical and law students differ before they begin their professional training. The population consisted of 178 male freshmen medical students and 198 male freshmen law students from the 1964 and 1965 classes of a large Eastern American University. A battery of personality tests was administered on a group basis one week before the beginning of classes. The results indicate that medical students tend to be more sensitive, more prone to worry and more idealistic, more socially perceptive and responsive to interpersonal nuances. But the results of the MMPI suggested that the law students were more extroverted and sociable and more often "masculine" in orientation; they seemed less humanitarian, more cynical and more authoritarian than medical students.

The conclusion is drawn that there are substantial differences between medical and law students before they begin their training, and that personality variables lead to selective entrance.

SPECTOR, Irwyn Leonard (Arizona State University) "An Analysis of certain characteristics and the educational success of Junior College freshmen." Dissertation Abstracts A, Vol. XXVII, Number 2, 640. University Microfilms, inc., Ann Arbor, Michigan, 1966.

The object of this study was to determine the characteristics of junior college freshmen as a group and by curriculum, as well as to determine the capability of certain student characteristics in predicting educational success. 1,547 first-time students at Phoenix College, Phoenix, Arizona, constituted the sample. Probability, correlational, and regression equation techniques were employed to predict the educational success of students for the overall college group and for curriculum groupings at semester intervals. The findings showed among other things that the eighteen year old student comprised 51% of the entering freshmen, and that this age group represented 57% of the educationally successful students at the end of four semesters. Students who attended college immediately after high school tended to succeed far better than students who entered college later. A comparison of the average ability scores of successful students indicated a wide variance in abilities between students in different curriculum areas. The study concludes that certain identifiable and objective student characteristics at the time of admission to college could be utilized to predict educational success. The socio-economic background of the student was not statistically significant in the prediction of educational success. The study made some nine recommendations for further study and research.

TRENT, James Religious Commitment and the Intellectual Life, University of Chicago Press, 1967, 336 pp.

This study seeks to compare the intellectual and religious values expressed by freshmen and seniors at Catholic colleges with those of Catholics and non-Catholics enrolled in public and private colleges between 1959 and 1966. The author hopes that there would result from the study an illumination of the nature of intellectual commitment in a religious subculture and the relationship of intellectual and religious orientations. It aims too at a fuller realization of the student vocation. Efforts are made at speculating about the source of the problem of Catholic intellectuality. Signs of intellectual development within the Church are revealed.

TRENT, James W. and MEDSKER, Leland L. Beyond High School, Center for Research and Development in Higher Education, University of California, Berkeley, California, 1967, 350 pp. and Appendices.

This is the report of a study of 10,000 high school graduates. The study which was made possible through the Co-operative Research Program of the U. S. Office of Education, concerned itself mainly with the personal and vocational development of a large sample of high school graduates during the first four

years after graduation. Employment and college attendance patterns between 1959 and 1963 are examined and factors associated with college withdrawal are investigated. The study compares two groups - students who accepted employment immediately after high school and those who were admitted to college. This comparison provided an opportunity to study the effect on the young, of employment and college attendance considered as primary intervening environmental factors.

One of the hypotheses from which the report proceeded is that there would be some relationship between entrance and length of persistence in college and degree and type of personality development. It concluded with emphasis on the role of the schools in helping youth to make a living and to achieve "self-actualization".

WALLACE, Walter L. Student Culture: Social Structure and Continuity in a Liberal Arts College. Chicago, Ill., Aldine Publishing Company, 1966.

The study reported herein has to do with the manner in which students in a small Mid-western liberal arts college become assimilated into the local "campus culture". The main concern is with the general human problem of "learning the ropes" in a new social situation. Hence the findings have implications for the study of the assimilation of new members into various kinds of associations and organizations as well as educational institutions.

WERTS, C. E. "Career Changes in College". National Merit Scholarship Cooperation Research Reports, 1966, Vol. 2, No. 7.

The project was concerned with changes in career plans during the freshman year. Samples of male students interested in engineering, teaching, medicine, business, law, chemistry, accountancy, and physics, from 248 heterogeneous colleges were studied. The results support the generalization that in terms of academic ability and social class background, students who are unlike the majority of the other students with the same initial career choice tend to change their career plans to another field where they would be like the other students.

WERTS, C. E. "Career Choice Patterns: Ability and Social Class". National Merit Scholarship, Cooperation Research Reports, Vol. 2, No. 3.

Data from 76,015 male and 51,110 female college freshmen from 248 colleges and universities were analyzed to determine the relationship of social class and ability to career choice. In general it was found that students at each ability level tend to have different career choices depending on their class background.

WESTERN, J. S. and ANDERSON, D. S. "Some implications of career decisions". Australian Journal of Higher Education, 1966, 2(3), 207 - 218.

The problem was concerned with motives for choosing a course of study and career and the time at which decisions are made. Questionnaires were distributed to all first year students in Law and Engineering at the University of Melbourne. Eighty percent of the Law students numbering 203 responded, while 189 Engineering students (99%) responded. The findings revealed three classes of students, those who make the subject matter the main determinant of their choice, those who consider

Students (cont.)

secondary gain beyond training (security, prestige, etc.) the most important, and those whose decisions are guided by experiences of an intellectual or social character. While interests were more important to the engineering students, the law students looked more to gain. An interest in some aspect of the subject matter was the main reason for the decisions made by students at an early age, but students deciding later were inclined to give a personal motive for the decision. To the law students social and intellectual experiences seemed more important, although these did not appear to affect decision time to any great extent.

REID, J. Christopher and MACLENNAN, Donald W. Research in Instructional Television and Film. U. S. Department of Health, Education and Welfare, U. S. Government Printing Office, Washington, D. C., 1967, 216 pp.

The authors present an abstract of the experimental literature on instructional television and instructional film research since 1950. The report does not include historical or descriptive studies, reports of surveys, surveys of research, and other non-experimental reports. The number and description of subjects, criterion instruments, reliability and validity data and some statistics are included. The abstracts in this study fall into certain categories under which the trends are discussed including comparisons of televised with direct or face to face instruction, comparisons of filmed or kinescoped courses with direct direction, and studies of attitudes related to instructional television. Over 300 abstracts constitute the main body of the report, and these represent a substantial sampling of the research on instructional films and instructional television in the period 1950 to 1964. The main purpose of the review is to point out the directions in which research of this nature has been going, the present status of such research and some possible future directions. A few studies have shown differences in favor of television and a few others have found differences in the opposite direction. In some instances differences that were found on immediate tests of learning disappeared when students were retested after a few days or weeks delay. In general, it can be concluded, as the great majority of the studies reveal that there are no significant differences in measured performance between students who were instructed via television and those who received direct teaching.